

Telephone: 805-934-8200

August 22, 2014

Mr. Jared Blumenfeld Regional Administrator EPA, Region 9 NPDES/DMR, WTR-7 75 Hawthorne Street San Francisco, CA 94105-3901

Re: Discharge Monitoring Report - Platform Hermosa NPDES Permit CAG280000

Dear Mr. Blumenfeld:

This letter and its attachments represent the Discharge Monitoring Report (DMR) for the months of May, June, and July 2014 for Platform Hermosa.

Included herein are the following attachments:

Attachment 1 is comprised of the EPA DMR forms 3320-1.

Attachment 2 is a listing of the chemical inventory for miscellaneous discharges (specifically non-contact cooling and fire water) as required by II.F. of the subject permit.

Attachment 3 are the undissociated sulfide conversion calculation tables in accordance with II.B.1.a. of the permit.

Attachment 4 provides required pre-dilution and post-dilution chlorine results for non-contact cooling and fire water discharges in accordance with Appendix C of the permit.

Attachment 5 summarizes miscellaneous sampling results for extra testing we initiated. These results are included since the results were derived by an EPA approved test method, in accordance with Part III.D. of the permit.

Attachment 6 includes copies of the official state certified lab reports for O & G and miscellaneous NPDES monitoring. Also included are the laboratory quality control reports for the lab reports, Chronic Whole Effluent Toxicity (WET) Testing performed in

Dear Mr. Blumenfeld August 22, 2014 Page 2 of 3

May on red abalone, giant kelp, and topsmelt and other required information (MLs, MDLs, EPA Methods, chains-of-custody, sample dates, etc.).

The following is a brief summary of some of the monitoring and reporting parameters affecting the various discharges

Produced Water (Discharge 002):

A dilution ratio of 2086:1 was derived using the average flow rate from the previous quarter, as defined in Part V of the permit. This dilution was applied to the quarterly testing results and the numeric values reported in the DMR are post dilution values for comparison to the permit limits listed in the permit under Appendix B.

Well Treatment, Completion and Workover Fluids (Discharge 003):

There were no well treatment, completion and workover fluid jobs performed during this quarter.

Sanitary and Domestic Waste (Discharge 005):

The required annual Marine Sanitation Device (MSD) inspection was completed on June 24. The inspection included a chlorine test to ensure proper operation and chlorine results are included in the DMR. The MSD is in good condition and operating properly. A full inspection report is available upon request.

Non-Contact Cooling Water and Fire Water (Discharge 008 and 009):

Small amounts of chlorine are used to prevent internal bio-fouling within the piping in the non-contact cooling water and fire water systems on the platform. Attachment 4 summarizes the official quarterly chlorine result including post dilution and end of pipe results.

The quarterly testing results and the numeric values for chlorine reported in the DMR are post dilution values for comparison to the permit limits listed in Appendix C of the NPDES permit.

The majority of the fire water that is discharged occurs during short fire water pump tests. Separate EPA Plumes UM dilution models were run on the fire water and the non-contact cooling water systems and have been applied to the post dilution values reported in the DMR.

Dear Mr. Blumenfeld August 22, 2014 Page 3 of 3

FM O&G uses an independent contractor to collect NPDES compliance monitoring samples at our offshore platforms. EPA sampling, preservation and documentation protocol is a strict requirement of our monitoring program.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C & 1001 and 33 U.S.C. & 1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years)

If you should have any questions or require additional information, please contact me at (805) 934-8220.

Sincerely,

David Rose

Manager, Environmental, Health & Safety

Attachment(s)

CC:

Ms. Susan Zaleski, Bureau of Ocean Energy Management

Ms. Alison Dettmer, California Coastal Commission

Mr. James Salmons, Bureau of Safety Environmental Enforcement

Platform Hermosa Foremen

Platform Hermosa

Attachment 1

EPA DMR PERMIT NO. CAG280000

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

WELL DISCHARGE MONITORING REPORT (Well DMR)

RMIT NO.

001	l
DISCHARGE NO.	l

Approved Form OMB No. 2000-0015

PLATFORM HERMOSA

LOCATION: 34° 27' 15"N, 120° 38' 48"W

			MONITORIN	IG PERIO	DRILLING FLUIDS AND DRILL CUTTINGS (001)			
	YR	MO	DAY	YR	MO	DAY		1
Fro	m:		14 05 01	То:		14 07	31	

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PARAMETER			Quantity or Load			Quality or C		NO. EX.	Frequency Analysis	Sample Type	
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DRILLING FLUIDS VOLUME	Sample										
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David Rose		PERSONNEL PROPERLY DA	THER AND EVALUATE THE INFORMATION	N SUBMITTED. BASED ON MY I	HOURY OF THE	1, 1) 2	f Reac		[
Manager, Environmental, Health and Safety		PERSON OR PERSONS WHO	MANAGE THE SYSTEM, OR THOSE PE	REONS DIRECTLY RESPONSIS	LE POR	, Oam	J. Com	(805) 934-	.822n	08 22	2014
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Annual cumulative volume limit is applied to the cumulative volumes for the period of March 2014 through February 2015.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

WELL DISCHARGE MONITORING REPORT (Well DMR)

CAG280000	
PERMIT NO.	

001 DISCHARGE NO. Approved Form OMB No. 2000-0015

PLATFORM HERMOSA

LOCATION: 34° 27' 15"N, 120° 38' 48"W

	M	ONITORIN	G PERIC	D	DRILLING FLUIDS AND DRILL CUTTINGS (001)		
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¹ Annual cumulative volume limit is applied to the cumulative volumes for the period of March 2014 through February 2015.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

WELL DISCHARGE MONITORING REPORT (Well DMR)

CAC200000
CAGZBUUUU
DEDMIT NO
PERMIT NO.

001 DISCHARGE NO. Approved Form OMB No. 2000-0015

PLATFORM HERMOSA

LOCATION: 34° 27' 15"N, 120° 38' 48"W

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PROHIBITED DISCHARGE						Report	+		E.aUII	
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2. Diesel Oil				' h	·	107.5	- }		IN/A	
3. Non-aqueous based drilling fluids o	r cuttinas (No Discharge			N/A	
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N / A: No discharge of drilling fluids

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) DISCHARGE MONITORING REPORT (DMR)

CAG280000	
PERMIT NO.	٦

002 DISCHARGE NO.

Approved Form OMB No. 2000-0015

PLATFORM HERMOSA

LOCATION: 34° 27' 15"N, 120° 38' 48"W

MONITORING PERIOD													
YR MO DAY	YR MO DAY	Т											
From: 14 05 01	To: 14 07 31												

PRODUCED WATER (002)

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PARAMETER			Quantity or L			Quality or Co	oncentration		NO. EX.	Frequency Analysis	Sample Type
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David Rose	. 1	PERSONNEL PROPERLY GA	THER AND EVALUATE THE BIPO	RMATION SUBMITTED, BASED	ON MY INQUIRY OF THE	. 1) 6	0 //	İ			
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¹ Annual cumulative volume limit is applied to the cumulative volumes for the period of March 2014 through February 2015.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) DISCHARGE MONITORING REPORT (DMR)

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	CAG280000	
	PERMIT NO	

002 Discharge No. Approved Form OMB No. 2000-0015

PLATFORM HERMOSA

LOCATION: 34° 27' 15"N, 120° 38' 48"W

	MONITORING PERIOD								
YR	MO	DAY	YR	MO	DAY				
F	rom: 14	05 01		To:	14 07 31				

PRODUCED WATER (002) Enforceable Limits

NOTE: Read instructions before completing this form.

PARAMETER			Quantity or Lo	pading		Quality or Co	ncentration		NO. EX.	Frequency Analysis	Sample Type		
7,00000		Average	Maximum	Units	Minimum	Average	Maximum	Units					
PRODUCED WATER OIL & GREASE ₁	Sample Measurement					8.1	8.8		0	1/week	Grab		
May	Permit Requirement					29.0	42.0	mg/L		1/week	Grab/ Composite		
	Sample Measurement					6.2	9.8		0	1/week	Grab		
June	Permit Requirement					29.0	42.0	mg/L	<u> </u>	1/week	Grab/ Composite		
	Sample Measurement					8.9	13.0		0	1/week	Grab (
July	Permit Requirement				<u> </u>	29.0	42.0	mg/L		1/week	Grab/ Composite		
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72			2 122 22		2.6								
NAME/TITLE PRINCIPAL EXECUTIVE OFFIC	ÆR	CERTIFY UNDER PENALTY C	OF LAW THAT THIS DOCUMENTA	IND ALL ATTACHMENTS W	ERE PREPARED UNDER MY	0.5%200		TELEP	HONE	DA	TE		
David Rose Manager, Environmental, Health and S	afety	DIRECTION OR SUPERVISION PERSONNEL PROPERLY GAT PERSON OR PERSONS WHO	IN ACCORDANCE WITH A SYSTI THER AND EVALUATE THE IMPO MANAGE THE SYSTEM, OR TH	AMATION SUBMITTED. BAS	THAT QUALIPED MED ON MY INQUIRY OF THE RESPONSIBLE FOR	1)05	Rec	(805) 934	-8220	08 22	2014		
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NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) DISCHARGE MONITORING REPORT (DMR)

CAG280000 PERMIT NO. 002 DISCHARGE NO. Approved Form OMB No. 2000-0015

PLATFORM HERMOSA LOCATION: 34° 27' 15"N, 120° 38' 48"W

	MONITORING PERIOD									
YR	MO	DAY	YR	MO	DAY					
Fre	om: 14	05 01		To: 14	07 31					

PRODUCED WATER (002)
Enforceable Limits

NOTE: Read instructions before completing this form Quantity or Loading Quality or Concentration NO. Frequency Sample **PARAMETER** EX. Analysis Type Units Average Maximum Units Minimum Average₁ Maximum₁ PRODUCED WATER MONTHLY 1 Sample 1 / month Measurement 0.00379 0.00379 mg/L Grab May Permit UNDISSOCIATED SULFIDE Requirement 0.0049 0.00577 1 / month Grab Sample Measurement 0.00247 0.00247 mg/L 0 1 / month Grab June Permit UNDISSOCIATED SULFIDE Requirement 0.0049 0.00577 1 / month Grab Sample 0.00384 0.00384 1 / month Grab July Measurement mg/L 0 Permit UNDISSOCIATED SULFIDE Requirement 0.0049 0.00577 1 / month Grab PRODUCED WATER Sample CONSTITUENTS-QUARTERLY 1 Measurement PASS 0 1 Aguarter Composite Permit 3-SPECIES TOXICITY Requirement Pass / Fail 1./guarter Composite PRODUCED WATER Sample NODI(B) CONSTITUENTS-ANNUAL 1 Measurement NODI(B) mg/L 0 1 / year Grab Permit Requirement **COPPER** N/A N/A 1 / year Grab Sample Measurement 0.00034 0.00034 mg/L 0 1 / year Grab Permit BENZENE Requirement N/A N/A 1 / year Grab NODI(B) NODI(B) 0 mg/L 1 / year Grab BENZO(A)ANTHRACENE N/A N/A 1 / year Grab NAME/TITLE PRINCIPAL EXECUTIVE OFFICER TELEPHONE DATE DERTIFY UNDER PEHALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY David Rose Manager, Environmental, Health and Safety (805) 934-8220 80 22 2014 Signature of PRINCIPAL EXECUTIVE Area MONTH/DAY/YEAR TYPED OR PRINTED OFFICER or AUTHORIZED AGENT Code Number

NODI(Q): equal to or above the MDL, but less than the ML or PQL.

COMMENT AND EXPLANATION OF ANY VIOLATION (Reference all attachments here.)

¹ Results are post-dilution, and the limits listed are post-dilution as listed in the new permit, Appendix B.

N / A: There are no limits in the new Permit effective March 1, 2014, Appendix B.

NODI(B): below MDL (laboratory's minimum detection level), the maximum value of all analytical results is less than the laboratory's MDLs.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

CAG280000 PERMIT NO. 002 DISCHARGE NO. Approved Form OMB No. 2000-0015

PLATFORM HERMOSA

LOCATION: 34° 27' 15"N, 120° 38' 48"W

| MONITORING PERIOD | YR MO DAY | YR MO DAY | YR MO DAY | From: 14 05 01 | To: 14 07 31

PRODUCED WATER (002) Enforceable Limits

										s before completin	
PARAMETER			Quantity or	J		Quality o	r Concentratio	n	NO. EX.	Frequency Analysis	Sample Type
		Average	Maximum	Units	Minimum	Average	Maximum	Units	1		"
PRODUCED WATER	Sample							Ì			
CONSTITUENTS-ANNUAL 1	Measurement	ı				NODI(B)	NODI(B)	mg/L	0	1 / year	Grab
	Permit			1		1	` ′				
BENZO(A)PYRENE	Requirement					N/A	N/A			1 / year	Grab
	Sample	" I				T					1
	Measurement					NODI(B)	NODI(B)	mg/L	0	1 / year	Grab
01151405115	Permit							1			
CHRYSENE	Requirement					N/A	N/A			1 / year	Grab
	Sample										
	Measurement Permit				ļ	NODI(B)	NODI(B)	mg/L	0	1 / year	Grab
BENZO(B)FLUORANTHENE	Requirement					N/ A				4	
	Sample				ļ	N/A	N/A			1 / year	Grab
	Measurement	I			1	NODI(B)	NODI(B)	mg/L	0	1 / year	Grab
	Permit					HODI(B)	NODI(B)	Hig/L	\vdash	i / yeai	Grab
BENZO(K)FLUORANTHENE	Requirement					N/A	· N/A		1	1 / year	Grab
	T TO GUILLO IN GUILL				 	177	1177			i / yeai	Giab
		ı						,			
		1									
						1			l í		
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					<u> </u>						
		i									
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	1		i								
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	1				l						
NAMEZITILE PHINCIPAL EXECUTIVE OFFICEH		ZERTIFY UNDER PENALTY OF L	AW THAT THIS DOCUMENT AND A	ALL ATTACHMENTS WERE P	REPARED UNDER MY			TELEPH	IONE	DAT	E
David Rose	ľ.	MECTION OR SUPERVISION IN	ACCOMBANCE WITH A SYSTEM D	ESIGNED TO ASSURE THAT	QUALIFIED		C Reac				
Manager, Environmental, Health and Sa	efety .	ERSON OR SERENIE WAY	H AND EVALUATE THE INFORMA		N MY INQUIRY OF THE	and	- Comment	(805) 004		00 00	0044
on, minimum, rudio or or or	· 1	ATHERMS THE INFORMATION	IMAGE THE SYSTEM, OR THOSE	PERSONS DIRECTLY RESPO	PROBLE FOR	,		(805) 934	-0220	08 22	2014
		ELIEF TRUE ACCURATE AND	COMPLETE (AM AWARE THAT TO	GREATE BEST OF MY KNO	MI THE MOR						
		UBLITTING FALSE INFORMATIO	H INCLUDING THE POSSIBLITY O	F FINE AND IMPRESOMMENT	FPOR KNOWING						
	v	IOLATIONS. BEE 16 U.S.C. & 10	01 AND 23 U.S.C. & 1519, [PENAL	THE UNDER THESE STATUS	ES MAY INCLUDE PINES	Signature of PRINC	IPAL EXECUTIVE	Area		MONTH/DAY	/NEAD
TYPED OR PRINTED	l _u	MUMOKAM RO GNA 808 912 CT	IMPRISONMENT OF SETWEEN S			OFFICER or AUTH			Numbe		I / TEAH
COMMENT AND EVOLANATION OF	4 N D / L / (A T A T A T		44 4			DI LICETTO AUTO	WINZED AUENT	しては	I AMILITO 6	1	

COMMENT AND EXPLANATION OF ANY VIOLATION (Reference all attachments here.)

¹ Results are post-dilution, and the limits listed are post-dilution as listed in the new permit, Appendix B.

N / A: There are no limits in the new Permit effective March 1, 2014, Appendix B.

NODI(B): below MDL (laboratory's minimum detection level), if the maximum value of all analytical results is less than the laboratory's MDLs.

NODI(Q): equal to or above the MDL, but less than the ML or PQL.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (INPDES) DISCHARGE MONITORING REPORT (DMR)

CAG280000
PERMIT NO.

003 DISCHARGE NO. Approved Form OMB No. 2000-0015

PLATFORM HERMOSA

LOCATION: 34° 27' 15"N, 120° 38' 48"W

MONITORING PERIOD								
YR MO DAY	YR MO DAY							
From: 14 05 01	To: 14 07 31							

WELL TREATMENT, COMPLETION AND WORKOVER FLUIDS (003)

(Injected or commingled with produced water)
NDTE: Read instructions before completing this form.

PARAMETER			Quantity or Load	ling		Quality or Co	ncentration		NÖ. EX.	Frequency Analysis	Sample Type	
		Average	Maximum	Units	Minimum	Average	Maximum	Units	Ì			
WELL TREATMENT, COMPLETION AND WORKOVER FLUIDS	Sample Measurement		No Discharge	Barrels /								
FLOW 1 May	Permit Requirement		Report	Job						1 / job	Estimate	
	Sample Measurement		No Discharge	Barrels /								
June	Permit Requirement		Report	Job						1 / job	Estimate	
	Sample Measurement Permit		No Discharge	Barrels / Job								
July WELL TREATMENT, COMPLETION	Requirement		Report	300					L	1 / job	Estimate	
AND WORKOVER FLUIDS						MONTHLY	DAILY					
OIL AND GREASE ;						AVERAGE	MAXIMUM					
	Sample Measurement					No Discharge	No Discharge					
May	Permit Requirement				p.	29.0	42.0	mg/L		1/job	Grab	
	Sample Measurement					No Discharge	No Discharge					
June	Permit Requirement					29.0	42.0	mg/L		1/job	Grab	
	Sample Measurement					No Discharge	No Discharge					
July	Permit Requirement					29.0	42.0	mg/L		1/job	Grab	
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		I CERTIFY UNDER PEHALTY	OF LAW THAT THIS SOCUMENT AND A	LL ATTACHMENTS WERE PRO	PARED UNDER MY	20.0	12.0	TELEPHONE		DATE	Oldb	
David Rose Manager, Environmental, Health and Safety		OPECTION ON SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFED PERSONNEL PROPERLY GATHER AND EVALUATE THE SPORMATION SUBMITTED, BASED ON MY HOUSINY OF THE PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS OPECTLY RESPONSIBLE FOR GATHERWORT THE SPORMATION THE REPORMATION SUBMITTED IS. TO THE SEST OF MY KNOWLEDGE AND			Danf Rec (805) &		(805) 934-	8220	08 22	2014		
		BELIEF TRUE ACCURATE A	IND COMPLETE. I AN AWARE THAT THE	ERE ARE SIGNIFICANT PENA F FINE AND INPRISONMENT F	LTIES POR							
TYPED OR PRINTED COMMENT AND EXPLANATION OF A		VIOLATIONS SEE 18 U.S.C. UP TO \$18,000 AND OR MAN	& 1001 AND 33 U S C & 1319 (PENALT MUM SUPPRECNMENT OF BETWEEN 6	MONTHS AND 5 YEARS)	NAY INCLUDE FINES	Signature of PRINCIPAL EX OFFICER or AUTHORIZED		Area Code	Number	MONTH/DAY/YEAR		

Well Treatment and Completion & Workover fluids are injected or commingled with produced water and are not discharged separately. Refer to produced water monitoring requirements.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

CAG280000
PERMIT NO.

003 DISCHARGE NO.

Approved Form OMB No. 2000-0015

PLATFORM HERMOSA

LOCATION: 34° 27' 15"N, 120° 38' 48"W

MONITORING PERIOD								
YR MO	DAY	YR	MO	DAY	٦			
From:	14 05 01		To:	14 07 31	٦			

WELL TREATMENT, COMPLETION AND WORKOVER FLUIDS (003) (Injected or commingled with produced water)

					-					of water produced	
		T .	Quantity or Lo	edina		Quality or Co	poontrotion	NOTE: Read instructions before completing this fo			
PARAMETER		İ	Quality of Lo	ading	1	Quality of Co	nice itration		NO. EX.	Frequency Analysis	Sample
		Average	Maximum	Units	Minimum	Average	Maximum	Units	[<u>-</u> ^.	Analysis	Туре
WELL TREATMENT, COMPLETION	Sample		***************************************	- Crinic	TVIII III III III	Avoidge	IVIDAITIUITI	Units			
AND WORKOVER FLUIDS,	Measurement		0	Barrels /				1		•	
TYPE AND TOTAL NUMBER OF JOBS	Permit			Job				-	⊢—	-	
	Requirement		Report		1]	
WELL TREATMENT, COMPLETION	Sample		- Nopoli	 					 		
AND WORKOVER FLUIDS 1 STATIC	Measurement			1	1	No Discharge		# Times			
SHEEN	Permit			1				Sheen			
May	Requirement	1			Negative Statio	Sheen Test - # Times	channed None	Observed		1/discharge	Grab
	Sample	1			1 40 Jan 140 Otalio	Sileon jest-# Illies	ODSGLAGOLIADUG	Observed		1/discriarge	Grab
	Measurement					No Discharge		# Times			l
	Permit			1		Diodiaigo		Sheen			
June	Requirement				Negative Static	Sheen Test - # Times	observed None	Observed		1/discharge	Grab
	Sample		· · · · · · · · · · · · · · · · · · ·		THOUGHT O'CANTO	Oneen rest - # Illies	ODS BLABOLIANI IB	Obacived		1/ulscriaige	Giab
	Measurement			1		No Discharge		# Times		l i	
	Permit			1		ito bioonargo		Sheen			
July	Requirement	1 1		ı	Negative Static	Sheen Test - # Times	observed None	Observed		1/discharge	Grab
	Sample		· · · · · · · · · · · · · · · · · · ·		Troppante Oranio	Choor fost - # Tillies	ODS 61 A GOLL ACI IS	Observed		1/discriaige	Grab
	Measurement	1 1		ſ							
	Permit			1				1	_		-
	Requirement	1 1		l	1						
WELL TREATMENT, COMPLETION	Sample										
AND WORKOVER FLUIDS	Measurement	j		ŀ		N/A		1		ľ	
Chemical Inventory	Permit			1				1			
May - July	Requirement					Report		1	1	1/iob	Report
	Sample							1		17]00	Report
	Measurement				ŀ						
	Permit		-					1 1			
	Requirement]		l	
NAME / ITLE PRINCIPAL EXECUTIVE OFFICER		CERTIFY UNDER PENALTY OF	F LAW THAT THIS DOCUMENT AND	ALL ATTACHMENTS WERE	PREPARED UNDER MY		-	TELEPHONE		DATE	
		DIRECTION OR SUPERVISION I	N ACCORDANCE WITH A SYSTEM	DESIGNED TO ASSURE THE	TOUALIPED			TELEFHONE	$\overline{}$	DATE	
David Rose		PERSONNEL PROPERLY GAT	HER AND EVALUATE THE INFORM	ATION SUBMITTED BASED	ON MY HOURY OF THE	2	0	İ			
Manager, Environmental, Health and Safe	ety	PERSON OR PERSONS WHO	MANAGE THE SYSTEM, OF THOSE	E PERSONS DIRECTLY RESI	PONSIBLE FOR	Doing	16	(805) 934-	₈₂₂₀	08 22	2014
		GATHERING THE INFORMATIO	H THE PEPOPMATION SUBMITTED	IS, TO THE BEST OF MY KH	DWLEDGE AND	- and	Lac	(000) 004		00 22	2014
		BELIEF THUE, ADDIRATE AN	D COMPLETE I AM AWARE THAY	THERE ARE SIGNIFICANT PE	ENALTIES POR	*					
		SUBMITTING FALSE IMPORMA	TION SICLUDING THE POSSIBILITY	OF PINE AND IMPRISONALE	HT POR KNOWING				-		
		VIDIATIONS. SEE 18 U.S.C. &	1001 AND 33 U.S.C. & 1319. (PENA	LITES UNDER THESE STATE	ITES MAY INCLUDE FINES	Signature of PRINCIPAL EX	ECUTIVE	Area		MONTH/DA	VNEAD
TYPED OR PRINTED		UP TO \$10,000 AND OR MAXMU	UM IMPRISONMENT OF BETWEEN	S MONTHS AND S YEARS)		OFFICER or AUTHORIZED	–	1	ımber	MOMITADA	II / I EMP
OMMENT AND EXPLANATION OF A	NY VIOLATION /Pof	orongo all atta	obmonto horo		· · · · · · · · · · · · · · · · · · ·	4		12000 140	41182741		

COMMENT AND EXPLANATION OF ANY VIOLATION (Reference all attachments here.)

N / A: No WTCF this quarter.

^{&#}x27;Well Treatment and Completion & Workover fluids are injected or commingled with produced water and are not discharged separately. Refer to produced water monitoring requirements.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

	CAG280000
ĺ	PERMIT NO.

004 DISCHARGE NO. Approved Form OMB No. 2000-0015

PLATFORM HERMOSA

LOCATION: 34° 27' 15"N, 120° 38' 48"W

MONITORI	NG PERIOD
YR MO DAY	YR MO DAY
From: 14 05 01	To: 14 07 31

DECK DRAINAGE (004)

LUCATION: 34° 27° 15"N, 120° 36	40 VV		. 14 05 01		. 14 07 31	_	NOTE: De-		- h-(latina	مستعادة المالية
		Quantity or L	nading		Quality or C	concentration	NU1E: Hea	NO.	Frequency	Sample
PARAMETER		Quantity of E	bauling					EX.	Analysis	Туре
PARAMETER		Average	Units	Minimum	Average	Maximum	Units	1		"
DECK DRAINAGE	Sample		Mo. Avg.					1	1/month	Estimate
VOLUME-FLOW RATE	Measurement	23.4	bbl/day					0		
	Permit		1 1				7		1/month	Estimate
[∞] May	Requirement	Report	1					İ		
	Sample		Mo. Avg.						1/month	Estimate
	Measurement	39.8	_ bbl/day				_	0		
	Permit		7					1	1/month	Estimate
June	Requirement	Report	10000000							
	Sample		Mo. Avg.						1/month	Estimate
	Measurement	73.1	bbl/day				_	0		
	Permit								1/month	Estimate
July	Requirement	Report		595)						
							4			
	Operation							-	1/day	Visual -
DECK DRAINAGE	Sample	l 0	# Davs	No feet all diese	ai sheen on the re			0	1/uay	
FREE OIL	Measurement Permit	0	# Days Sheen	NO ILSE OILVISU	al sneen on the re	cerving water.	┥	-	1/day	Daylight Visual -
May	Requirement	0		No free cildries	al sheen on the re	ooiuing water	İ		1/day	Dayligh
Iviay	Sample		Observed	110 1100 01174130	BI \$110011 011 010 10	COITING TEACH.	+	+	1/day	Visual -
	Measurement	l 0	# Days	No free oil Arieu	al sheen on the re	reiving water		l 0	,,,day	Dayligh
	Permit		Sheen	110 1100 0117134	GI 3110011 011 010 10	COITING TRACE.	┪	├ ─	1/day	Visual -
June	Requirement	l 0		No free oil bisu	al sheen on the re	reiving water		1	,,,day	Daylight
Cano	Sample		00001100	110 1100 0111100	4 0110011 011 (10 10	borring reator.	+	1	1/day	Visual -
	Measurement	l 0	# Days	No free oil visus	al sheen on the re	ceiving water		0	,,,day	Daylight
	Permit	Ť	Sheen	1101100	<u></u>	sorting traise.	1	۳	1/day	Visual -
July	Requirement	l 0		No free oil/visus	al sheen on the re	ceiving water				Daylight
AME/TITLE PRINCIPAL EXECUTIVE OFFICER	110000000000000000000000000000000000000		AND ALL ATTACHMENTS WEI	NE PREPARED UNDER MY			TELEPHO	INF	DATE	_ wyg
		D RECTION OR SUPERVISION IN ACCORDANCE WITH A SYS	TEM DESIGNED TO ASSURE 1	MAT QUALIFIED			1000			
David Rose		PERSONNEL PROPERLY GATHER AND EVALUATE THE NO	OPMATION BUSINITED BASE	D ON MY INQUIRY OF THE	1) 4	00	1			
Manager, Environmental, Health and	l Safety	PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR T	HOSE PERSONS DIRECTLY PI	ESPONSIBLE FOR	, 1 Can	J'IFE	(805) 93	4-8220	08 22	2014
	·	GATHERING THE INFORMATION, THE INFORMATION SUBMIT	TEO IS, TO THE BEST OF MY	KNOWLEDGE AND		7	\			
		BELIEF, TRUE ACCURATE AND COMPLETE I AM AWARE?	HAT THERE ARE SIGNIFICANT	PENALTIES FOR						
		SUBMITTING FALSE INFORMATION INCLUDING THE POSSIS	LITY OF PINE AND INPRISON	MENT FOR KNOWING				-		
		VIOLATIONS, SEE 18 U.S.C. & 1001 AND 23 U.S.C. & 1319 (I	PENALTIES UNDER THESE ST	ATUTES MAY INCLUDE PINES	Signature of PRINCIPAL	EXECUTIVE	Area		MONTH/DA	AY/YEAR
TYPED OR PRINTED		UP TO \$10 000 AND OR MAXIMUM IMPRISONMENT OF BETW	EEN 8 MONTHS AND 5 YEARS	n)	OFFICER of AUTHORIZE	ED AGENT	Code	Number		*
COMMENT AND EXPLANATION OF A	NY VIOLATION (Referen	ce all attachments here 1			-					

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (IMPDES) DISCHARGE MONITORING REPORT (DMR)

ICAC:23000000	
CO TOLLOGO	
IPERMIT NO	
L'EUMII MO	

005 DISCHARGE NO. Approved Form OMB No. 2000-0015

PLATFORM HERMOSA

LOCATION: 34° 27' 15"N, 120° 38' 48"W

		M	ONITORI	NG PER	IOD			18
	YR	MO	DAY	YR	MO	DAY		1
Е	Fr	om: 14	05 01		To:	14 07 3	31	1

SANITARY & DOMESTIC WASTES (005)

(Commingled)

				-				NDTE: Read ins	tructions b	efore completing this	s form.
PARAMETER			Quantity or Lo	pading	Quality or Concentration				NO.	Frequency	Sample
PARAMETER		Average	Maximum	Units	Minimum	I Almana	Mandanasan	T Hatta	EX.	Analysis	Туре
SANITARY & DOMESTIC	Sample	Average	IVIAXIIIUIII	Units	Minimum	Average	Maximum	Units		1/day	Estimate
WASTES FLOW RATE	Measurement	30.0		Monthly					0	1/day	Estimate
(Commingled)	Permit			Average				╡	Ť	1/month	Estimate
May	Requirement	Report		bbl/day				1		1711102101	Louinad
	Sample					·		<u> </u>		1/day	Estimate
	Measurement	34.0		Monthly	ŀ				0	,	
	Permit			Average				1		1/month	Estimate
June	Requirement	Report		bbl/day				1			
	Sample									1/day	Estimate
	Measurement	34.0		Monthly			L		0	, i	
	Permit			Average				7		1/month	Estimate
July	Requirement	Report		bbl/day			1	1			
SANITARY & DOMESTIC	Sample					fies:				1/day	Visual -
WASTES FOAM & FLOATING	Measurement		0	# days	No foam or floating solids in the receiving waters.			J	0		Daylight
SOLIDS (Commingled)	Permit			observed			377.	1		1/day	Visual -
May	Requirement		0		No foam or floating	1			Daylight		
	Sample									1/day	Visual -
	Measurement		0	# days	No foam or floating solids in the receiving waters.				0	,	Daylight
_	Permit	. "		observed				1		1/day	Visual -
June	Requirement		0		No foam or floatin	g solids in the receiv	ing waters.				Daylight
	Sample									1/day	Visual -
	Measurement		0	# days	No foam or floatin	g solids in the receiv	ing waters.	_	0		Daylight
	Permit	i	_	observed		3001		1		1/day	Visual -
July	Requirement		0		No foam or floatin	g solids in the receive	ing waters.				Daylight
								1			
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		CERTIFY UNDER PENALTY C	OF LAW THAT THIS DOCUMENTA	NO ALL ATTACHMENTS WE	RE PREPARED UNDER MY	-		TELEPHONE		DATE	
		DIFECTION OR SUPERVISION	IN ACCOMPANCE WITH A SYSTE	M DESIGNED TO ASSURE	RAT QUALIFIED				9710		
David Rose		PERSONNEL PROPERLY GA	THER AND EVALUATE THE IMPOR	MATION SUBMITTED, BASE	D ON MY INQUIRY OF THE	1) 6	1		I		
Manager, Environmental, Health and Safety		PERSON OR PERSONS WHO	MANAGE THE SYSTEM, OR THE	ME PERSONS DIRECTLY RE	ESPONSIBLE POR	:) c. [K	(805) 934-	8220	08 22	2014
	GATHERING THE INFORMATION THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND			KHOWLEDGE AND	may !	and .	(, , , , , , , , , , , , , , , , , , ,				
		BELIEF TRUE, ACCUPATE, A	ND COMPLETE, I AM AWARE TH	AT THERE ARE SIGNEPICANT	PENALTIES FOR						
		SUBMITTING FALSE INPORMA	ATION INCLUDING THE POSSIBIL	TY OF FINE AND IMPRISONS	KENT FOR KNOWING					******	
		VIOLATIONS. SEE 18 U.S.C. 4	1001 AND 22 U S C & 1219, (PE	HALTIES UNDER THESE ST	ATUTES MAY INCLUDE FINES	Signature of PRINCIPAL EX	ECUTIVE	Area		MONTH/DA	Y/YEAR
TYPED OR PRINTED COMMENT AND EXPLANATION OF A		TO 318.000 AND OR MADMUM IMPRESONMENT OF RETWEEN & MONOYS AND A VENERO					Code	Number			

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) DISCHARGE MONITORING REPORT (DMR)

CAG280000 PERMIT NO. 005 DISCHARGE NO.

Approved Form OMB No. 2000-0015

PLATFORM HERMOSA

LOCATION: 34° 27' 15"N, 120° 38' 48"W

MONITOR	RING PERIOD	
YR MO DAY	YR MO	DAY
From: 14 05 01	To:	14 07 31

SANITARY & DOMESTIC WASTES (005)
(Commingled)

200/11/014.04 27 10 14, 120 00 40	• • • •		110111.	17 00 01	1	1. 14 Ur JI	_				
		-						NOTE: Read		ons before comp	
PARAMETER			Quantity or Lo			Quality or Concentration			NO. EX.	Frequency Analysis	Sample Type
		Average	Maximum	Units	Minimum	Average	Maximum	Units			
DOMESTIC WASTE VOLUME /	Sample							l			
FOAM (commingled with Sanitary) ₁	Measurement			1		N/A		# of Days			
	Permit	1						Observed		1 / day	Visual
May	Requirement				No foam or floa	ting solids in the rec	eiving water.				Daylig
	Sample							1			
	Measurement					N/A		# of Days			
I	Permit							Observed		1 / day	Visual
June	Requirement				No loam or Iloa	ting solids in the rec	eiving water.	 _ 			Daylig
	Sample	ŀ	!	ľ							
	Measurement			1		N/A		# of Days		4.1	\
1	Permit							Observed		1 / day	Visual
July SANITARY / DOMESTIC	Requirement				No foam of floa	ting solids in the rec	elving water.				Dayligh
WASTE RESIDUAL	Sample Measurement				NI/A	N				8.4 4b-b	
				1	N/A	N/A	N/A	mg/l	0	Monthly	Grab
CHLORINE 2	Permit										
May	Requirement				1 mg/l	N/A	10 mg/l			Monthly	Grab
	Sample Measurement				4.2*	N/A	4.2*	mall	0	Monthly	Grab
	Permit			1	7.2	IN/A	4.2	mg/l	-	WORTHIN	Grab
June	Requirement				1 mg/l	N/A	10 mg/l	1		Monthly	Grab
	Sample				1 111897	1777	To mg/r			Monthly	Grab
	Measurement				N/A	N/A	N/A	mg/l	0	Monthly	Grab
	Permit			1		İ					4100
July	Requirement				1 mg/l	N/A	10 mg/l			Monthly	Grab
						neji gov					
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER											
NAMEATILE FRINGIPAL EXECUTIVE UPPILEM		CERTIFY UNDER PENALTY	OF LAW THAT THIS DOCUMENTA	HU ALL ATTACHMENTS V	VERE PREPARED UNDER MY			TELEPHONI	-	DATE	
David Rose		DIRECTION ON BUPERVISION	THE AUGORDANCE WITH A SYST	EM DESIGNED TO ASSUR	TE THAT QUALIFIED	Dougt	0		- 1		
Manager, Environmental, Health and Safety		PERSONNEL PROPERTY GA	THEN AND EVALUATE THE SHPCK	MATION SUBMITTED, BA	ASED ON MY INQUERY OF THE	:) On [1Km	(805) 934	9220	08 22	2014
FERRON PERSON PE			ON THE INCIDENT THE PARTY OF THE	POS PERSONS SWECTLY	PERFUNSIEE FOR	- my	a sec	(000) 934	-0220	00 22	2014
		BEINE THE ADDRESS	NO. OR RECORD IN AUGUST	EU IO. TO THE SEST OF A	MY KNOWLEDGE AND			1	- 1		
		SUBMITTING FALSE MEGAL	ATOM MOTURAL THE BOARD	NY INDRESE AND SAMPLES	NIT PERALTRE FOR			-		1 1889 - F2	
		MICHATONS SEE 11 11 C	ATION INCLUDING THE POSSIBIL 8 1001 AND 23 U S C & 1319 (PS	IN OF PINE AND IMPRISO	PRINCETT FOR KNOWING	L			- 1	400 PT UP 4	VACAD
TYPED OR PRINTED		4	A 1001 AND 33 O B C & 1319 (PE			Page		Code	Ab makes	MONTH/DA	Y/YEAR
TYPED UN PRINTED OPEN TO THE COMMENT AND EXPLANATION OF ANY VIOLATION (Reference					iney	TOT TOER OF MOTIFICALIZED	MICH	Leade	Number		

COMMENT AND EXPLANATION OF ANY VIOLATION (Reference all attachments here.)

* The chlorine residual result reported in June was taken as part of the annual Marine Sanitation Device (MSD) inspection.

¹ Reported with sanitary discharges.

² The sewage treatment unit is a marine sanitation device that complies with pollution control standards and regulations under Section 312 of the Clean Water Act. Thus, it is deemed to be in compliance with permit limitations for sanitary waste discharges (as per Condition II.E.1 Footnote 2 of CAG280000)

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) DISCHARGE MONITORING REPORT (DMR)

CAG280000	
PERMIT NO.	П

008 DISCHARGE NO.

Approved Form OMB No. 2000-0015

PLATFORM HERMOSA

LOCATION: 34° 27' 15"N, 120° 38' 48"W

	M	DNITORI	NG PER	IOD		
YR	MO	DAY	YR	MO	DAY	
	om: 14	05 01		To: 1	4 07 31	

FIRE CONTROL WATER (008)
(deluge commingled with deck drains)

							NOTE: Read ins	tructions b	efore completing this	form.
					oncentration		NO. EX.	Frequency Analysis	Sampl Type	
		Average	Units	Minimum	Average	Maximum	Units	1		
	1					12329WW				Visual -
		0		No foam in the rece	iving water.			0	1./day	Dayligh
	1		Observed	No floating solids in	the receiving water.					Visual -
		0				100	.1		1.Hay	Dayligh
Sample	1	1		No floating solids in	the receiving water.					Visual -
Measurement		0	# Days	No foam in the recei	iving water.			0	1.Hay	Dayligh
Permit			Observed	No floating solids in	the receiving water.		1			Visual -
Requirement	<u> </u>	0		No foam in the recei	iving water.		1		1.Hay	Dayligh
Sample				No floating solids in	the receiving water.					Visual -
Measurement		0	# Days	No foam in the recei	ving water.			0	1./day	Dayligh
			Observed	No floating solids in	the receiving water.					Visual -
Requirement		0		No foam in the recei	ving water.				1.Hay	Dayligh
	1				Monthly	Daily				
			<u> </u>		Average	Maximum	.1.	L I		
Sample										
Measurement	1	ļ			0.0010	0.0010	mg/l	0	1/buarter	Grab
Permit						1	1			
Requirement					0.00595	0.00953			1./buarter	Grab
										-
	l						1			
						1	1			
		J		1		1				
Sample							1			
Measurement				See Attachmer	nt #2 (Chemical I	nventory)	1			
Permit					3		1			
Requirement	L				Report		1		ĺ	
					alla.					
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			NO ALL ATTACHMENTS WE	NE PREPARED UNDER MY			TELEPHONE		DATE	
	DIRECTION OR SUPERVISION	IN ACCOMDANCE WITH A SYSTE	EM DESKINED TO ASSURE T	THAT QUALIFIED	7 =	1		7		
David Rose Manager, Environmental, Health and Safety		THER AND EVALUATE THE INPO	MATION SUBMITTED, BASE	D ON MY INQUIRY OF THE	!) 1	1/	1	- 1		
		O MANAGE THE SYSTEM, OR TH	DEE PERSONS DIRECTLY RE	ESPONSIBLE FOR	and	Les C	(805) 934-	8220	08 22	2014
	GATHERING THE INPORMAT	ON, THE INFORMATION SUBMITT	ED IS, TO THE BEST OF MY	KNOWLEDGE AND			1	- 1		
	BELIEF, TRUE, ACCURATE, A	IND COMPLETE. I AM AWARE TH	AT THERE ARE SIGNIFICANT	PENALTIES POR						
	SUBMITTING FALSE INFORM	ATION HOLDONG THE POSSIBILI	TY OF PINE AND SIPPISONS	MENT FOR KNOWING	1830					
	VIOLATIONS SEE 18 U.S.C.				MAY INCLUDE PINES Signature of PRINCIPAL EXECUTIVE Area			- 1	MONTH/DAY/YE	AR
TYPED OR PRINTED UP TO 816 ON			UP TO \$15 000 AND OR MUNICIPAL MIPRICHAEMT OF BETWEEN 5 MONTHS AND 5 YEARS) OFFICER OF AUTHORIZED AGENT Reference all attachments here \(\)					de Number		
	Permit Requirement Sample Measurement Permit Requirement Sample Measurement Permit Requirement Sample Measurement Permit Requirement Requirement	Measurement Permit Requirement Sample Measurement Permit Requirement Sample Measurement Permit Requirement Sample Measurement Permit Requirement Sample Measurement Permit Requirement I Requirement Sample Measurement Permit Requirement Sample Measurement Permit Requirement Sample Measurement Sampl	Sample Measurement Permit Requirement O Sample Measurement O Permit Requirement O Sample Measurement O Sample Measurement O Sample Measurement O Sample Measurement Permit Requirement O Sample Measurement Permit Requirement O Sample Measurement Permit Requirement Permit Requirement Sample Measurement Permit Requirement Sample Measurement O Sample Measurement O Sample Measurem	Sample Measurement Permit Requirement O # Days Observed Measurement O # Days Observed Measurement O # Days Observed	Sample Measurement O # Days Observed No floating solids in No foam in the rece No floating solids in No foam in t	Sample Measurement O #Days Observed No floating solids in the receiving water. No floating solids in the receiv	Average Units Minimum Average Maximum Sample Measurement 0 # Days Permit Observed No floating solds in the receiving water. No floating solds in the receiv	Average Units Minimum Average Maximum Units	Average Units Minimum Average Maximum Units	Average Units Minimum Average Maximum Units Sample Measurement 0 # Days Permit Requirement 0 No losating solds in the receiving water. No losating in the solds in the receiving water. No losating in the receiving water. No losating in the solds in the receiving water. No losating in the receiving water. No losating in the receiving water. No losating in the receiving water. No losating in the receiving water. No losating in the receiving water. No losating in the receiving water. No losating in the receiving water. No losating in the receiving water. No losating in the receiving water. No losating in the receiving water. No losating in the receiving water. No losating solds in the receiving water. No losating solds in the receiving water. No losating solds in the receiving water. No losating solds in the receiving water. No losating solds in the receiving water. No losating solds in the receiving water. No losating solds in the receiving water. No losating solds in the receiving water. No losating solds in the receiving water. No losating solds in the receiving water. No losating solds in the receiving water. No losating solds in the receiving water. No losating solds in the receiving water. No losating solds in the receiving w

COMMENT AND EXPLANATION OF ANY VIOLATION (Reference all attachments here.)

¹ Fire control system test water is infrequent and uses the same source water and treatment as non-contact cooling water.

² Chlorine values reported above are post-dilution per EPA Plumes UM. Chlorine limits are post-dilution as listed in the new permit, Appendix C.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (IMPDES) DISCHARGE MONITORING REPORT (DMR)

	CAG280000
ı	PERMIT NO.

009 DISCHARGE NO. Approved Form OMB No. 2000-0015

PLATFORM HERMOSA

LOCATION: 34° 27' 15"N, 120° 38' 48"W

MONITORING PERIOD								
YR MO DAY	YR MO DAY							
From: 14 05 01	To: 14 07 31							

NON-CONTACT COOLING WATER (009)

NOTE: Read instructions before completing this form.

PARAMETER			Quantity or Lo	pading	Quantity or Loading Quality or Concentration PARAMETER						Sample Type
			Average	Units	Minimum	Average	Maximum	Units			
NON-CONTACT COOLING WATER (009) - FLOW VOLUME	Sample Measurement		111,429	Barrels/					0	1./m onth	E stim ate
May	Permit Requirement		Report	Day				1./m onth	E stim ate		
	Sample										.
	Measurement		111,429	Barrels/ Day		1			0	1./month	E stim ate
June	Permit Requirement		Report	Бау						1 Am onth	Estimate
	Sample Measurement		111,429	Barrels/]	0	1./month	E stim ate
July	Permit Requirement		Report	Day						1 /m onth	Estim ate
NON-CONTACT COOLING WATER (009) - FOAM	Sample Measurement		0	# Days	No floating soli No foam in the		0	1 /day	Visual - Daylight		
FLOATING SOLIDS	Permit			Observed	No floating soli				Visual -		
May	Requirement		0		No foam in the			1./day	Daylight		
	Sample Measurement		0	# Days		ids in the receiving receiving water.	water.]	0	1./day	Visual - Daylight
June	Permit Requirement		0	Observed		ids in the receiving receiving water.	water.			1./day	Visual - Daylight
	Sample Measurement		0	# Days		ids in the receiving receiving	ı water.		0	1.⁄day	Visual - Daylight
July	Permit Requirement		0		No floating sol	ids in the receiving receiving	water.			1./day	Visual - Daylight
outy	Requirement				THO TOOM IN GIO	Todorning reads.	·			1144	a william
								1			
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		CERTIFY UNDER PENALTY	OF LAW THAT THIS DOCUMENT	AND ALL ATTACHMENTS WERE	PREPARED UNDER MY			TELEPHONE		DATE	
David Rose		DIRECTION OR SUPERVISION PERSONNEL PROPERLY GA	N IN ACCORDANCE WITH A SYST ATHER AND EVALUATE THE INFO	EM DESIGNED TO ASSUME THE PMATION SUBMITTED BASED	AT QUALIFIED ON MY INQUIRY OF THE	-					
Manager, Environmental, Health and Safety person on persons who manage the system. On those person anthermal the deformation, the deformation submitted is, to the selep, thue, accurant, and complete in an amage that there are			OSE PERSONS DIRECTLY RES TED IS, TO THE BEST OF MY KN IAT THERE AIRE SIGNETICANT PI	PONSIBLE POR NOWLEDGE AND ENALTIES POR	Dans	fRee	(805) 934-	8220	08 22	2014	
		SUBMITTING FALSE INFORM	IATION HOLUDING THE POSSIBIL	JTY OF PINE AND IMPRISONME	NT FOR KNOWING						
TYPED OR PRINTED		VIOLATIONS, SEE 18 U S C	a 1001 and 33 U S C. a 1319. (P. MUM IMPRISONMENT OF BETWI	ENALTIES UNDER THESE STAT	UTES MAY INCLUDE PINES	Signature of PRINCIPAL I		Area Code N	lumber	MONTH/I	DAY/YEAR
COMMENT AND EXPLANATION OF	ANY VIOLATION					JOI HOLING HOLIDAZE	- P FWEITI	Iona),	#41 IDBI		

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) DISCHARGE MONITORING REPORT (DMR)

CAG280000 PERMIT NO. 009 DISCHARGE NO.

Approved Form OMB No. 2000-0015

PLATFORM HERMOSA

LOCATION: 34° 27' 15"N, 120° 38' 48"W

MONITORING PERIOD

YR MO DAY YR MO DAY

From: 14 05 01 To: 14 07 31

NON-CONTACT COOLING WATER (009)

							NOTE: Read	instructions	before completing	g this form.
DADAMETED		Quantity or Lo	oading		Quality or Co			NO.	Frequency	Sample
PARAMETER					Monthly	Daily		EX.	Analysis	Туре
NON CONTACT COCK INC		Average	Units	Minimum	Average	Maximum	Units			· ·
NON-CONTACT COOLING	Sample				10					
WATER (009) - CHLORINE ₁	Measurement		1		0.0021	0.0021	mg/l	0	1/year	Grab
	Permit						7			
July	Requirement				N/A	N/A			1/year	Grab
			j							
NON-CONTACT COOLING	Sample						 			
WATER (009)	Measurement			See Attachme	nt #2 (Chemical I	nventory)		Ιo	1/month	List
CHEMICAL INVENTORY	Permit		1				1		77.11.011.01	LIO
May - July	Requirement		-	-	Report				1/month	List
							_			
						 				
										 -
	+			<u> </u>						
					·					
					·					
NAME /TITLE PRINCIPAL EXECUTIVE OFFICER	I CERTIFY UNDER	PENALTY OF LAW THAT THIS DOCUMENT AN	NO ALL ATTACHMENTS WE	RE PREPARED UNDER MY			TELEPHONE		DATE	
and b.	DIRECTION OR S	PERVISION IN ACCORDANCE WITH A SYSTEM	M DESIGNED TO ASSURE	THAT QUALIFIED			TELETITIONE		DATE	
David Rose	PERSONNEL PR	OPERLY GATHER AND EVALUATE THE INPOR	MATION SUBMITTED BASE	THE 90 YANDON YM NO O	1 5	0	1			
Manager, Environmental, Health and Sa	afety PERSON ON PE	ISONS WHO MANAGE THE SYSTEM. OR THO	SE PERSONS DIRECTLY PI	ESPONSMUE FOR	Don't	(Fee	(805) 934	-8220	08 22	2014
	GATHERING THE	REPORMATION, THE INPOPMATION SUBMITTE	D IS. TO THE BEST OF MY	KNOWLEDGE AND	9	-	(000) 304	UEEU	00 22	4014
	BELIEF, THUE, AC	CURATE AND COMPLETE I AM AWARE THAT	T THERE ARE SIGNIFICANT	PENALTIES POR			-			
	SUBACTING FAL	BE INFORMATION INCLUDING THE POSSIBLIT	Y OF FINE AND IMPRISONS	ENT FOR KNOWING						
	VIOLATIONS SE	18 U.S.C. & 1001 AND 33 U.S.C. & 1319. (PEN	ALTIES UNDER THESE ST	ATUTES MAY INCLUDE PINES S	ignature of PRINCIPAL EXE	CUTIVE	Area	1	LACALTTI UP AN	/A/EAD
TYPED OR PRINTED COMMENT AND EXPLANATION OF A				1	FFICER or AUTHORIZED		n sa		MONTH/DAY	T/YEAR

¹ Chlorine values reported above are post-dilution per EPA Plumes UM.

N / A: There are no limits in the new Permit effective March 1, 2014, Appendix C.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

CAG280000 PERMIT NO.

019 DISCHARGE NO. Approved Form OMB No. 2000-0015

PLATFORM HERMOSA

LOCATION: 34° 27' 15"N, 120° 38' 48"W

		MONITORI	NG PER	IOD	-	
YR	MO	DAY	YR	MO	DAY	
	From:	14 05 01		To: 1	4 07 31	П

EXCESS CEMENT SLURRY (019)

								NRTF: Beadin	etructione h	efore completing th	ie form
PARAMETER			Quantity or Load			Quality or Co	ncentration	,10 12,11000	NO. EX.	Frequency Analysis	Sample Type
	1		Average	Units	Minimum	Average	Maximum	Units	1	1	"
EXCESS CEMENT SLURRY (019)	Sample								T		
FLOW VOLUME	Measurement		No Discharge	Monthly						1	
	Permit			Average*							
May	Requirement		Report	bbl/day					1	1/month	Estimate
	Sample				-					1	
	Measurement		No Discharge	Monthly							
	Permit			Average*				٦			
June	Requirement	1	Report	bbl/day					1	1/month	Estimate
	Sample										
	Measurement		No Discharge	Monthly		<u> </u>					
	Permit			Average*				7			
July	Requirement		Report	bbl/day				İ		1/month	Estimate
	Sample										
ANNUAL CUMULATIVE VOLUME 1	Measurement		0	Barrels/					0	İ	
	Permit 1	1		Year	***************************************			7			
03/01/14 - 02/28/15	Requirement		2,000					1		İ	
EXCESS CEMENT SLURRY (019)	Sample	1									
SHEEN TESTÆREE OIL	Measurement		No Discharge	# Days		No Discharge			1		
FOAM, FLOATING SOLIDS	Permit			Sheen	No foam or fl	oating solids		1		1/well	Visual
May	Requirement	ł	None	Observed	No Oil	•			l l	1/day	Rec. Wat
	Sample			i							
	Measurement	İ	No Discharge	# Days		No Discharge					
	Permit		ito Biodital go		No foam or flo	nating solids		⊣	_	1/well	Visual
June	Requirement		None	Observed	No Oil	outing condo		1		1/weii 1/day	Rec. Wat
	Sample	 		00001100	110 011			 		1/uay	Nec. Was
	Measurement		No Discharge	# Days		No Discharge					
	Permit			Sheen	No foam or flo			1		1/well	Visual
July	Requirement		None	Observed		odding collab				1/day	Rec. Wat
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		CERTIFY UNDER PENALTY	OF LAW THAT THEIR DOCUMENT AND ALL	ATTRICHUENTS WERE BOX	THE OIL	1 100		TELEPHONE			INEC. VVal
							TELEPHONE		DATE		
David Rose		PERSONNEL PROPERLY OF	ATHER AND SWALLIATE THE MICHAELE	W SUBSTITED BASES ON	AN AND THE PARTY OF THE	Don't	0	1			
anager, Environmental, Health and Safety		BERSON OR RESSOUR WA		M COMMITTED BASED ON	ET MOUNT OF THE	1. 10-1	Fe	(805) 934		08 22	0044
		GATHERING THE BROOM AND	TO A THE MEDICAL PROPERTY OF THE PROPERTY OF T	PRIORIS DIRECTLY RESPON	SOLE FOR	0	a con	(000) 934	-0220	08 22	2014
		BELLE THE ACCUSATE	AND COURS FOR LAW AWARE THE	OF ANY PROPERTY MY KNOW	LEUASE AND						
		SUMMITTING HALES SHOOM	AATOM MAY HOUSE THE BONG THE BONG THE	THE RESERVE AND PENAL	LIRBOUN			+			
				SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING							
TYPED OR PRINTED		No.			Signature of PRINCIPAL EX		Area		MONTH/DAY/Y	EAR	
	IMENT AND EXPLANATION OF ANY VIOLATION			ONTHS AND 5 YEARS)		OFFICER or AUTHORIZED	AGENT	Code	Number		

COMMENT AND EXPLANATION OF ANY VIOLATION (Reference all attachments here.)

Annual cumulative volume limit is applied to the cumulative volumes for the period of March 2014 through February 2015.

PLATFORM HERMOSA

LOCATION: 34° 27' 15"N, 120° 38' 48"W

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

	CAG280000
ı	PERMIT NO

008,007,010,011,012,013,014 DISCHARGE NO.

	M	ONITORI	NG PERI	OD		
YR	MO	DAY	YR	MO	DAY	
Fr	om: 14	05 01		To: 1	4 07 31	

Approved Form OMB No. 2000-0015

Blowout Preventer Fluids
Desalination Unit

Ballast/Storage Displacement

Bilge Water Boiler Blowdown

Test Fluids Diatomaceous Earth Filter Media

NOTE: Read instructions before completing this form.

								NUIL: Read inst	tructions be	fore completing this	orm.
PARAMETER			Quantity or Lo	pading	Quality or Concentration		ncentration		NO. EX.	Frequency Analysis	Sample Type
		Average	Maximum	Units	Minimum	Average	Maximum	Units	1	1	1 "
(006) Blowout Preventer Fluids	Sample									1	
FREE OIL, FOAM, FLOATING	Measurement	İ				No Discharge		1			
SOLIDS	Permit			i e	No free oil or floati	ng solids in the receiving v	vater.	1		1/month	Visual
May - July	Requirement				No foam, in other t	han trace amounts, in the	receiving water.	1		1/discharge	Rec. Water
(007) Desalination Unit	Sample				No floating solids in	the receiving water.		1		1/month	Visual
FOAM, FLOATING	Measurement]		1	No foam, in other t	han trace amounts, in the	receiving water.	i	Ιo	1/discharge	Rec. Water
SOLIDS	Permit					the receiving water.	100	1		1/month	Visual
May - July	Requirement				No foam, in other ti	han trace amounts, in the	receiving water.	1		1/discharge	Rec. Water
(010) Ballast/Storage Displacement	Sample	No		i e				1			
Water - FLOW RATE	Measurement	Discharge		Monthly		No Discharge		1	1	ì	
FREE OIL, FOAM, FLOATING SOLIDS	Permit			Average	No free oil or floati	ng solids in the receiving v	water.	7		1/month	Estimate /
May - July	Requirement	Report		bblAtlay	No foam, in other ti	nan trace amounts, in the	receiving water.			1/discharge	Visual Dayligi
(011) Bilge Water	Sample	No						1			
FLOW RATE	Measurement	Discharge		Monthly		No Discharge					
	Permit			Average	No free oil or floatir	ng solids in the receiving v	vater.	1		1/month	Estimate
May - July	Requirement	Report	i	bbl/day	No foam, in other th	nan trace amounts, in the	receiving water.	1	1	1/discharge	
(012) Boiler Blowdown	Sample										
FOAM, FLOATING SOLIDS	Measurement	1				No Discharge					
	Permit				No floating solids in	the receiving water.		7		1/month	Visual
May - July	Requirement				No foam, in other th	nan trace amounts, in the	receiving water.			1/discharge	Rec. Water
(013) Test Fluids *	Sample	No									1
FLOW RATE	Measurement	Discharge		Monthly		No Discharge			ļ		
FREE OIL, FOAM, FLOATING SOLIDS	Permit			Average	No free oil or floatin	ng solids in the receiving w	mber	1	\vdash	1/month	Estimate /
May - July	Requirement	Report		bbl/tlav	203	nan trace amounts, in the					Visual Dayligh
(014) Diatomaceous Earth Filter Media	Sample				Tro rount, irrodor u	rail a doo dilloui ke, ill alo l	COOLAND MOREL.	+		Traidorialgo	Viocal Dayligi
FREE OIL, FOAM, FLOATING	Measurement					No Discharge					
SOLIDS	Permit				No free oil or floatin	ng solids in the receiving w	anter	1		1/month	Visual
May - July	Requirement				1	an trace amounts, in the r				1/discharge	Rec. Water
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		CERTIFY UNDER PENALTY O	F LAW THAT THIS DOCUMENTA	NO ALL ATTACHMENTS WE	RE PREPARED UNDER MY	The state of the s	ocorring reator.	TELEPHONE		DATE	1 100. VValor
		DIRECTION OR SUPERVISION	IN ACCOMPANCE WITH A SYSTE	EM DESIGNED TO ASSURE	THAT QUALIFIED			TELEFITIONE		DAIL	
David Rose		PERSONNEL PROPERLY DAY	THER AND EVALUATE THE IMPO	BMATION SUBMITTED BASI	FO ON MY INCHIBY OF THE	1) =	0				
Manager, Environmental, Health and Sa	fetv	PERSON OR PERSONS WHO	NAMAGE THE SYSTEM OR THE	ORE PERSONS DIRECTLY IS	ESPONSIII E POR	Dail	1/2	(805) 934-	.คววก	08 22	2014
G ,	,	CATHERING THE INFORMATIO	ON THE INFORMATION SUBJUTT	ED IS 10 THE REST OF N	KNOW! EDGE AND	Cond	0 00	(000) 004	ULLU	00 22	2017
		SELEF TRUE ACCUSATE AS	ND COMPLETE IAM AWARE THE	ATTHERE ARE ENGINEERAL	F DENMI THE SOO						
		SUBMITTING FALSE INFORMA	TON INCLUDING THE POSSES	TY OF FINE AND IMPROVE	LENTENS CHOMINS			+			
	·	VIDLATIONS, SEE 18 II S C 3	1001 AND 21 U.S.C. A 1915 190	NATES LANGE THE ST	TATUTES MAY INCLUDE PINES	Signature of PRINCIPAL EX	ECI MVE	Area		MONTH/D	AVNEAD
TYPED OR PRINTED		UP TO \$10,000 AND OR MAYN	IUM IMPRISONMENT OF BETWE			OFFICER or AUTHORIZED		1	Vumber	MONITAL	MITEAR
COMMENT AND EXPLANATION OF A	NY VIOLATION	(Reference s	Il attachmente	here)	-,	TOTAL TOTAL NOTE OF THE PERSON	- CATAL	ICOMB I	Art Lines		

^{*} See Attachment 2 for Chemical Inventory, if discharged.

PLATFORM HERMOSA

LOCATION: 34° 27' 15"N, 120° 38' 48"W

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (INPDES) DISCHARGE MONITORING REPORT (DMR)

CAG280000 PERMIT NO. 015, 016, 017, 018, 020, 021 DISCHARGE NO.

MONITORING PERIOD

YR MO DAY YR MO DAY

From: 14 05 01 To: 14 07 31

Approved Form OMB No. 2000-0015

Bulk Water Transfer Overflow
Uncontaminated Water
Water Flooding Discharges
Laboratory Wastes (commingled with produced water)
Muds, Cuttings, Cement at Sea Floor
Hydrotest Water

	1		O					NOTE: Read in:		fore completing this	
PARAMETER			Quantity or Le	oading	(4 card only)				NO.	Frequency Analysis	Sample Type
			Average	Units	Minimum	Average	Maximum	Units	7	,,	,,,,,,
[015] Bulk Transfer Water Overflow	Sample										
FOAM, FLOATING SOLIDS	Measurement					No Discharge					
	Permit				No floating solids in	n the receiving water.		7		1/month	Visual
May - July	Requirement					han trace amounts, in the	receiving water.			1/discharge	Rec. Water
(016) Uncontaminated Water	Sample							1			
FOAM, FLOATING SOLIDS	Measurement	l	I	ļ		No Discharge		1	1	1	
	Permit				No floating solids is	the receiving water.		┪		1/month	Visual
May - July	Requirement	ı	ļ			han trace amounts, in the	tecejuing water	1	1	1/discharge	
(017) Water Flooding Discharges	Sample					nam d doo dinodi ke, iii dio	receiving water.	 	+ -	Maistrialge	INCC. VValei
FREE OIL, FOAM, FLOATING	Measurement					No Discharge					
SOLIDS*	Permit				No free oil or floati	ng solids in the receiving a	unter	┥		1/month	Visual
May - July	Requirement					nan trace amounts, in the		1		1/discharge	
(018) Laboratory Wastes	Sample				ito rodin, iir odibi d	N/A	receiving water.	 	+	1/uiscriarge	Rec. Water
FREE OIL, FOAM, FLOATING SOLIDS	Measurement			l	(refer to r	roduced water rec	ujromente\	i	1		
(commingled with produced water)	Permit					ng solids in the receiving		╡		1/month	Visual
May - July	Requirement	ļ	•			-		1			
(020) Muds, Cuttings, Cement at Sea	Sample				No roam, in other ti	nan trace amounts, in the	receiving water.	-	 	1/discharge	Rec. Water
FLOOR FREE OIL, FOAM,	Measurement			1		N- Diseless					
FLOATING SOLIDS	Permit					No Discharge		4	<u></u>		
May - July						ng solids in the receiving w			1	1/month	Visual
· · · · · · · · · · · · · · · · · · ·	Requirement				No foam, in other th	nan trace amounts, in the	receiving water.			1/discharge	Rec. Water
(021) Hydrotest Water *	Sample	No						1			
FLOW RATE /FREE OIL, FOAM	Measurement	Discharge		Monthly		No Discharge					
FLOATING SOLIDS	Permit			Average	No free oil or floatin	g solids in the receiving w	ater.	1		1/month	Estimate /
May - July	Requirement	Report		bbl/day		an trace amounts, in the				1/discharge	Visual Dayligh
(021) Hydrotest Water	Sample					No	No	-		ir aloonal go	vioual Dayligh
CHLORINE	Measurement					Discharge	Discharge	ug/L			
	Permit					-			<u> </u>	1/month	
May - July	Requirement					* 7.5	* 13		1 1	1/discharge	Grab
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		I CERTIFY UNDER PENALTY C	OF LAW THAT THIS DOCUMENT A	MD ALL ATTACHMENTS WE	RE PREPARED UNDER MY			TELEPHONE	-		Giab
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Manager, Environmental, Health and Sa	fety	PERSON OR PERSONS WHO	MANAGE THE SYSTEM OR THE	SE PERSON DIRECT VI	ESPONSIS SOR	- many	O Bare	(90E) 024	9220	00 00	0044
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TYPED OR PRINTED		VIOLATIONS, SEE 18 U.S.C. I	1001 AND 33 U.S.C. & 1319. PE			Signeture of PRINCIPAL EX		Area	l	MONTH	/DAY/YEAR
COMMENT AND EXPLANATION OF A		UP TO \$16,600 AND OR MANS	IUM IMPRISONMENT OF BETWEI	EN 6 MONTHS AND 5 YEAR	B)	OFFICER or AUTHORIZED	AGENT	Code I	Vumber I		

^{*} See Attachment 2 for Chemical Inventory, if discharged.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) DISCHARGE MONITORING REPORT (DMR)

CAG280000 PERMIT NO. 022 DISCHARGE NO. Approved Form OMB No. 2000-0015

PLATFORM HERMOSA

LOCATION: 34° 27' 15"N, 120° 38' 48"W

	MONITORING PERIOD								
YR M	O DAY	YR	MO	DAY					
From	: 14 05 01		To:	14 07 31					

H2S Gas Processing Waste Water

	-			7. 00 01	1	11 01 01				ns before complet	
7-7-7-A		T	Quantity or Lo	pading		Quality or Cor	ncentration	INC IE. Meau	NO.	Frequency	Sampl
PARAMETER									EX.	Analysis	Туре
		Average	Maximum	Units	Minimum	Average	Maximum	Units	7	'	
022) H2S Gas Processing Waste Water	Sample	No				1000					
LOW RATE	Measurement	Discharge		Monthly				1			
	Permit			Average				7			
May - July 022) H2S Gas Processing Waste Water	Requirement	Report	l	bbl/day				1		1/discharge	Estima
	Sample							T			
REE OIL, FOAM, FLOATING SOLIDS	Measurement			<u> </u>		No Discharge					
	Permit				No free oil or floating	solids in the receiving wa	ater.	7			Visual
May - July	Requirement		<u> </u>	L	No foam, in other the	an trace amounts, in the re	sceiving water.			1/discharge	Daylig
urfactants, Detergents, Dispersants	Sample			I						- 1	2.50
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lanager, Environmental, Health and Safe	₽ty	PERSON OR PERSONS WHO	MANAGE THE SYSTEM OR THE	ORE PERSONS DIRECTLY RE	ESPONSIBLE POR	Dougt	View !	(805) 934	-8220	08 22	2014
		GATHERING THE IMPORMATION	ON THE INFORMATION SUBNITT	ED IS, TO THE SEST OF MY	KNOWLEDGE AND						
		BELIEF TRUE, ACCURATE, A	NO COMPLETE FAM AWARE THE	AT THERE ARE SIGNIFICANT	PENALTIES POR			L			
		SUBMITTING FALSE INFORMA	ATION INCLUDING THE POSSIBLE	TY OF FINE AND IMPRISONS	AENT POR KNOWING						
		VIOLATIONS SEE 18 U.S.C. I	L 1001 AND 33 U.S.C. & 1319 (PE	HALTIES UNDER THESE ST	ATUTES MAY INCLUDE PINES	Signature of PRINCIPAL EXE	CUTIVE	Area		MONTH/DA	YYEAR
TYPED OR PRINTED OMMENT AND EXPLANATION OF A		MCAM FIG CHA 800,018 OF NA	IUM IMPRISONMENT OF BETWE	EN 8 MONTHS AND 6 YEARS	Allegan and the	OFFICER or AUTHORIZED A	MENT	Code	Number		

Attachment 2 Chemical Inventory

ATTACHMENT 2 PLATFORM HERMOSA MISCELLANEOUS DISCHARGES CHEMICAL INVENTORY May 1, 2014 through July 31, 2014

<u>Fluid Type</u>	<u>Volume</u>	Product Name	Estimated Chemical Quantity 2	Average End-of-Pipe Concentration
	(Monthly avg bbls per day)	<u> </u>	(Monthly avg gal per day)	(mg/l)
009 Non-contact Cooling Water		Chlorine		
May	111,429		0.94	0.20
June	111,429		1.59	0.34
July	111,429		1.08	0.23
008 Fire Control System Water		Chlorine		
May	416		0.004	0.22
June	513		0.005	0.21
July	379		0.004	0.28
013 Test Fluids	No Discharge	No Discharge	None	None
017 Water Flooding Discharges	No Discharge	No Discharge	None	None
021 Hydrotest Water	No Discharge	No Discharge	None	None

¹ Firewater volumes are estimated based on one 30 minute test approximately every 4 days (refer to cover letter).

² End-of-pipe concentration and chemical quantity calculated with Operations daily monitoring results using a non-EPA chlorine test method (Hach DPD Color Wheel). This method is not an official EPA test method, but using this data better represents the chemical inventory values from month to month since the official EPA test method is required only quarterly.

Attachment 3 Non-Contact Cooling Water / Fire Water Chlorine Residual Results

Platform Hermosa-Percent Undissociated sulfides (H2S) vs Total Sulfide:

DMR Quarter: May - July 2014

Standard Methods 19th Edition 1995, page 4-129

Enter Temperature as Kelvin where Temp K= Temp C+273.15 (automatic conversion at the bottom of this page).

Мау	1			Calculation As fresh water		Calculation As ocean water		CONTAINED CARROOM	Calculation as Produced water	
Ocean pH Produced Water pH Produced Water Temp. Ocean Water Temp Total Sulfides (Std. Mthd. 4500 S-2F) Dilution * Conductivity (produced water) "I" (produced water) Conductivity (ocean water)	8.1 7 354.26 k 288.15 k 138 mg/l 2086 61500 1.0 51200 0.82	Permit Historical 6-May-14 Qtr. Avg. Historical 13-May-14	pfm I St pK K'	0.501 0.059 0.02 4.3125E-03 7.11 1.01E-07 2.04E-07 2.88E-03 92.15	mole mole mg/L	A B / S pK' K' [H] [H2S] H28 as S	-0.115 0.00959 0.82 30 6.77 1.70E-07 1.03E-08 2.47E-04 7.90 mg	200 POLE (1) Co.	-0.138 0.00983 1.0 27 6.66 2.19E-07 1.26E-07 1.58E-03 50.42	
% H2S:						pfm	0.115 5.72%	pfm	0.102 36.54%	1- 1-
% ฅzs: Conc. as H2S (undissociated)							7.90 mg	:/1	50.42	mg/l
H2S Post Dilution:			_				0.0038 mg	_	0.0242	mg/l
H2S Post Dilution (ug/l):						de la constitución de la constit	3.787 ug		24,170	ug/i

Conditions:

* Dilution calculated from quarterly average flow rate from the previous DMR quarter (per the Permit) and the outfall configuation for this reporting quarter. Ocean water pH:8.1, salinity 30 g/kg as listed in the General NPDES permit. Produced water Temperature, pH and conductivity based on averages. i = 1.6x10-5 Conductivity (Stand.Methods 19th Edition, page 2-31).

Ocean water conditions for pH, Temp, Salinity, and conductivity will dominate over those for produced water at the edge of the 100m mixing zone. pK' (under ocean water) uses pK (7.11 as freshwater) in the PK' calculation which also includes standard ocean conditions (for pH, Salinity, Temp).

Temperature conversion:				
C = 5/9 (F-32)	Temp F	Temp	Temp. K	
Produced Water:	178	s 81.11	354.26	
Ocean Water:	59	15.00	288.15	

Platform Hermosa- Percent Undissociated sulfides (H2S) vs Total Sulfide:

DMR Quarter: May - July 2014

Standard Methods 19th Edition 1995, page 4-129

Enter Temperature as Kelvin where Temp K= Temp C+273.15 (automatic conversion at the bottom of this page).

June			Calculation As fresh water		Calculation As ocean water		Calculation as Produced water				
Ocean pH	8.1	Permit	Α	0.501		A	-0.115		Α	-0.138	
Produced Water pH	7	Historical							-1		
Produced Water Temp.	353.71 k										
Ocean Water Temp	288.15 k		pfm	0.059		В	0.00959		В	0.00983	
Total Sulfides (Std. Mthd. 4500 S-2F)	90 mg/l	6-Jun-14	1	0.02		1	0.82		I	1.0	
Dilution *	2086	Qtr. Avg.	St	2.8125E-03	mole	s	30		S	27	Dec.04
Conductivity (produced water)	61500	Historical	рK	7.11		pK'	6.77		pK	6.66	
"I" (produced water)	1,0		K'	1.01E-07		K'	1.70E-07		K	2.19E-07	
Conductivity (ocean water)	51400	12-Jun-14	[H]	2.04E-07		[H]	1.03E-08		[H]	1.26E-07	
"I" (ocean water)	0.82		[H2S]	1.88E-03	mole	[H2S]	1.61E-04	mole	[H2S]	1.03E-03	
			H28 as S	60.10	mg/L	H28 as 8	5.15	mg/L	H2S as S	32.92	mg/L
						pfm	0.115		pfm	0.102	
% H28:							5.72%			36.58%	
Conc. as H2S (undissociated)						18:17	5.15	mg/l		32.92	mg/i
H2S Post Dilution:							0.0025	mg/l		0.0158	mg/l
H2S Post Dilution (ug/i):						TO WELL TO	2.469	ug/l		15.781	ug/l

Conditions:

* Dilution calculated from quarterly average flow rate from the previous DMR quarter (per the Permit) and the outfall configuation for this reporting quarter. Ocean water pH:8.1, salinity 30 g/kg as listed in the General NPDES permit. Produced water Temperature, pH and conductivity based on averages.

I = 1.6x10-5 Conductivity (Stand.Methods 19th Edition, page 2-31).

Ocean water conditions for pH, Temp, Salinity, and conductivity will dominate over those for produced water at the edge of the 100m mixing zone.

pK' (under ocean water) uses pK (7.11 as freshwater) in the PK' calculation which also includes standard ocean conditions (for pH, Salinity, Temp).

Temperature conversion:				
C = 5/9 (F-32)	Temp F	Temp	Temp. K	
Produced Water:	177	80.56	353.71	
Ocean Water:	59	15.00	288.15	

Platform Hermosa- Percent Undissociated sulfides (H2S) vs Total Sulfide:

DMR Quarter: May - July 2014

Standard Methods 19th Edition 1995, page 4-129

Enter Temperature as Kelvin where Temp K= Temp C+273.15 (automatic conversion at the bottom of this page).

July			Calculation As fresh water		Calculation As ocean water			Calculation as Produced water		e Mala a	
Ocean pH Produced Water pH	8.1 7	Permit Historical	Α	0.501		A	-0.115		Α	-0.138	
Produced Water Temp. Ocean Water Temp	353.71 k 288.15 k		pfm	0.059		В	0.00959		В	0.00983	
Total Sulfides (Std. Mthd. 4500 S-2F)	140 mg/l	2-Jul-14	1	0.02		1	0.82			1.0	D == 04
Dilution * Conductivity (produced water)	2088 61500	Qtr. Avg. Historical	St pK K'	4.3750E-03 7.11 1.01E-07	mole	S pK' K'	30 6.77 1.70E-07		pK K	27 6.66 2.19E-07	Dec.04
"I" (produced water) Conductivity (ocean water) "I" (ocean water)	1.0 51500 0.82	9-Jul-14	[H] [H2S]	2.04E-07 2.92E-03	mole	(H) [H28]	1.03E-08 2.50E-04 n	nole	(H) [H28]	1.26E-07 1.60E-03	
i (ocean water)	0.82		H2S as S	93.49	mg/L	H2S as S		ng/L	H2S as S	51.21 0.102	mg/L
% H2S:							5.72%			36.58%	
Conc. as H2S (undissociated) H2S Post Dilution:								ng/l ng/l		51.21 0.0245	mg/l mg/l
H2S Post Dilution (ug/l):						克罗州 华	3.839 u	g/l		24.549	ug/i

Conditions:

* Dilution calculated from quarterly average flow rate from the previous DMR quarter (per the Permit) and the outfall configuation for this reporting quarter. Ocean water pH:8.1, salinity 30 g/kg as listed in the General NPDES permit. Produced water Temperature, pH and conductivity based on averages. I = 1.6x10-5 Conductivity (Stand.Methods 19th Edition, page 2-31).

Ocean water conditions for pH, Temp, Salinity, and conductivity will dominate over those for produced water at the edge of the 100m mixing zone. pK' (under ocean water) uses pK (7.11 as freshwater) in the PK' calculation which also includes standard ocean conditions (for pH, Salinity, Temp).

Temperature conversion:				
C = 5/9 (F-32)	Temp F	Temp 1	remp. K	
Produced Water:	177	80.56	353.71	
Ocean Water:	59	15.00	288.15	

Attachment 4 Non-Contact Cooling Water / Fire Water Chlorine Residual Results



July 24, 2014

Attn: David Rose

As part of the Annual Marine Sanitation Device (MSD) Inspection, and to ensure proper operation of the device, LTS Environmental performed an EPA-approved chlorine residual on the effluent. Results of this test are as follows:

Date/Time	Location	Total Chlorine Residual
	Platform Hermosa	(EPA Method 330.5)
	Sewage Effluent	
June 24, 2014	Omnipure 12MX	4.2 mg/l
@ 0800 hrs		
	Method Blank	< 0.05 mg/l (MDL)

LTS Technician: Mike Apple

S.G. Lawry

Environmental Specialist / LTS



July 25, 2014

Attn: Ruth Juris

Annual NPDES chlorine residuals on the non-contact cooling water outlet is as follows:

Sample Date / Time	Location Platform Hermosa	Total Chlorine Residual (EPA Method 330.5) End of Pipe
July 23, 2014 @ 1130 hrs	Non-Contact Cooling Water Outlet	0.36 mg/l
LTS Meter S/N: 12040E195572 Technician: Mike Apple	*	Method Blank < 0.05 mg/l

S.G. Lawry

Environmental Specialist / LTS



May 28, 2014

Attn: Ruth Juris

Quarterly NPDES chlorine residual on the fire water outlet is as follows:

Sample Date / Time	E)	Location	Total Chlorine Residual (EPA Method 330.5)
	1	Platform Hermosa	End of Pipe
May 13, 2014 @ 510 hrs		Firewater Outlet	0.16 mg/l
LTS Meter S/N: 12040E195572 Technician: Mike Apple			Method Blank < 0.05 mg/l (MDL)

S.G. Lawry

Environmental Specialist / LTS



August 13, 2013

Quality Control

As part of the annual in-house quality control chlorine meter check and to ensure proper operation of the meters, LTS Environmental performed a total residual chlorine test with a known value obtained from RT Corporation. Results of this test are as follows:

Test Date	Total Residual Chlorine				
August 12, 2013	(EPA Method 330.5)				
LTS meter (SN 041200088375)	2.78 mg/l				
LTS meter (SN 12040E195572)	2.74 mg/l				
RT Corporation test sample:	D.				
Certified Value	2.35 mg/l (+/0508)				
Standard Deviation	0.208 mg/l				
Acceptance Limits	1.73 - 2.98 mg/l				
	Method Blank < 0.05 mg/l				

S.G. Lawry

Environmental Specialist

LTS Lead Technician: Mike Apple

President, LTS

Attachment 5 Miscellaneous NPDES Monitoring

ATTACHMENT 5 PLATFORM HERMOSA MISCELLANEOUS MONITORING May 1, 2014 through July 31, 2014

Sample Location	Sample Date	Constituents	EPA Method	Lab Value	<u>Units</u>
Ocean Water at Fire Water Pumps	5/13/2014	Specific Conductivity	120.1	51,200	unhos/cm
	6/12/2014	Specific Conductivity	120.1	51,400	unhos/cm
	7/9/2014	Specific Conductivity	120.1	51,500	unhos/cm

Attachment 6

Laboratory Reports

Laboratory Quality Control Reports



Environmental and Analytical Services-Since 1994 California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

Prepared for: Freeport McMoRan O&G

C/O: LTS environmental, Inc.

704 Adirondack Avenue Ventura, CA 93003 Attn: Steve Lawry

Report Date: May 13, 2014 Laboratory Number: 141211

Project Name: PF Hermosa Weekly NPDES

Sampled by: Client

On May 8, 2014, Capco Analytical Services, Inc. (CAS), received four (4) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

SAMPLE DESCRIPTION	CAS LAB NUMBER ID
UNICEL OUT	141211-01
UNICEL OUT	141211-02*
UNICEL OUT	141211-03*
UNICEL OUT	141211-04*

*HOLD PER CUSTOMER'S REQUEST

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D.

Director - Analytical Operations

cc: PF Hermosa @-Orcutt Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

This report shall not be reproduced except in full without the written approval of CAS. The test results reported represent only the item being tested and may not represent the entire material from which the sample was taken.



CERTIFICATE OF ANALYSIS

Client: Freeport McMoRan O&G (PF Hermosa)

Date Sampled: 05/06/14

CAS LAB NO: 141211

Date Received: 05/08/14

Analyst: GM

Date Analyzed: 05/12/14 Sample Matrix: Water

OIL & GREASE ANALYSIS EPA METHOD 1664

CAS LAB #	Sample ID	RESULTS (mg/L)	DF	MDL (mg/L)	PQL (mg/L)
141211-01	Unicel Out	7.8	1	1	5

QUALITY CONTROL DATA

141211-MB Method Blank

ND 1 1 5

Chain of Custody

Canco Analytical Services	704 A Ver	Environmental, Inc. dirondack Avenue ntura, CA 93003	Report t	FM O&G	c/o S. Lawry			Bill to:	700 Mila	nts Payable m Ste 3100 , TX, 77002	5/15
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3 grab 1 /9/5 4 grab 1 2000 Comments: Run #1. Hold rest. Date: 5-8-14 Time: 13-00 Relinquished by: Date: Date: Relinquished by: Date: Date: Relinquished by: Date: Da		Unicelout		1	Date: 5-6-14		EPA 1664	Ab	s(11)	IRC12)	5-
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Environmental and Analytical Services-Since 1994 California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

Prepared for: Freeport McMoRan O&G

C/O: LTS environmental, Inc.

704 Adirondack Avenue Ventura, CA 93003 Attn: Steve Lawry

Report Date: May 16, 2014 Laboratory Number: 141260

Project Name: PF Hermosa wk(2) NPDES Weekly

CAMPLE DECORTORION

Sampled by: Client

On May 13, 2014, Capco Analytical Services, Inc.(CAS), received four(4) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

SAMPLE DESCRIPTION	CAS LAB NUMBER ID
N	
UNICEL OUT	141260-01
UNICEL OUT	141260-02*
UNICEL OUT	141260-03*
UNICEL OUT	141260-04*

*HOLD PER CUSTOMER'S REQUEST

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D. Director - Analytical Operations

cc: PF Hermosa @-Orcutt Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

This report shall not be reproduced except in full without the written approval of CAS. The test results reported represent only the item being tested and may not represent the entire material from which the sample was taken.



CERTIFICATE OF ANALYSIS

Client: Freeport McMoRan O&G (PF Hermosa)

CAS LAB NO: 141260

Analyst: GM

Date Sampled: 05/12/14

Date Received: 05/13/14 Date Analyzed: 05/13/14

Sample Matrix: Water

OIL & GREASE ANALYSIS EPA METHOD 1664

CAS LAB #	Sample ID	RESULTS (mg/L)	DF	MDL (mg/L)	PQL (mg/L)
141260-01	Unicel Out	8.6	1	1	5

QUALITY CONTROL DATA

141260-MB Method Blank

ND 1 1 5

Chain of Custody

704	Environmental, Inc. Adirondack Avenue entura, CA 93003	Report 1	FM O&G	c/o S. Lawry		· 155	Bill to: Accounts 700 Milam Houston, T	Ste 3100
***	805-644-4560		·····				1 Todaton, 1	Λ, 17002
FACILITY:	Hermosa wk	2) NPDES		4		SUBMITTED T	O Canco Ana	lytical Services
COLLECTOR			20.			REPORT TO:	3 S	PHONE:
PROJECT/C		ES		(() ()		COPIES TO:	Platform Supervisor	PHONE: 644-4560
RESULTS R				*			201 S. Broadway,	PHONE:
RESULTS 8	BY: PHONE:	FAX:			25.		Orcutt, CA 93455 Ruth Juris	5/21 5/
SAMPLE	SAMPLE ID/LOCATION	GRAB/	VOLUME	DATE/TIME	Pre-		ANALYSES REQUESTED	
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					·			
	10 H							31 3
							•)	
Comments:	Run #1. Hold the rest	10	- Vignite	· · · · · · · · · · · · · · · · · · ·				
Relinquished		X	Date:	5-)3-)4	Relinquis	shed by:		Date:
Received by:	·		Time:	1545	Receive	d by:		Time:
Relinquished	by:		Date:		Della	had by		
Received by:		. 3	. Time:		Relinquis Receives			Date:
	TO A STREET STREET		11116.	Approximate the second	ILLECAING(ı by.		Time:



Environmental and Analytical Services-Since 1994
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

Prepared for: Freeport McMoRan O&G

C/O: LTS environmental, Inc.

704 Adirondack Avenue Ventura, CA 93003 Attn: Steve Lawry

Report Date: May 28, 2014
Laboratory Number: 141327

Project Name: PF Hermosa wk(3) NPDES

Sampled by: Client

On May 22, 2014, Capco Analytical Services, Inc.(CAS), received four(4) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

SAMPLE DESCRIPTION	-	CAS LAB NUMBER ID
IINTORT OUR	i	1 44 007 04
UNICEL OUT	1 -	141327-01
UNICEL OUT	3	141327-02*
UNICEL OUT	1	141327-03*
UNICEL OUT		141327-04*

*HOLD PER CUSTOMER'S REQUEST

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D. Director - Analytical Operations

cc: PF Hermosa @-Orcutt
Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

This report shall not be reproduced except in full without the written approval of CAS. The test results reported represent only the item being tested and may not represent the entire material from which the sample was taken.



Environmental and Analytical Services-Since 1994 California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

CERTIFICATE OF ANALYSIS

Client: Freeport McMoRan O&G (PF Hermosa)

CAS LAB NO: 141327

Analyst: GM

Date Sampled: 05/20/14

Date Received: 05/22/14 Date Analyzed: 05/27/14

Sample Matrix: Water

OIL & GREASE ANALYSIS EPA METHOD 1664

CAS LAB #	Sample ID	RESULTS (mg/L)	DF	MDL (mg/L)	PQL (mg/L)
141327-01	Unicel Out	8.8	1	1	5

QUALITY CONTROL DATA

141327-MB

Method Blank

ND

Chain of Custody

704 A	Environmental, Inc. dirondack Avenue ntura, CA 93003	Report t	FM O&G	14 1 3 2	7		Bill to:	Accounts 700 Milam S Houston, TX	Ste 3100	
700	805-644-4560		8	14104						
FACILITY: COLLECTOR:	Hermosa wk	(3) NPDES				SUBMITTED T REPORT TO:	- 1	2	ytical Services PHONE:	-
PROJECT/CH	ARGE# Weekly NPD	ES				COPIES TO:		Supervisor Broadway,	PHONE: 644-4560 PHONE:	
RESULTS BY		FAX:		_		120	Orcutt, CA Ruth Juris	93455	ti	1/2
SAMPLE NO.	SAMPLE ID/LOCATION	GRAB/ COMP.	VOLUME	DATE/TIME COLLECTED	Pre- serv	€X		S REQUESTED	(METHOD)	1
1	Unicel out	grab	1	Date: 5/20/14 Time: 1545	HCI	EPA 1664	Abs (11)	IR (12)		
2		grab	1	1600					2	
3		grab	1	1615						
4	*	grab	1	1630	+				14	
							lt .		3	
				(4)					12	8
							160			·
		104 704 = \$1					16			
Comments:	Run #1, Hold rest.				-				20	-
Relinquished I	by: On	2	Date	3:22.14	Relinqui	shed by:		<u>.</u>	Date:	3901
Received by:		2		950	Receive		. ²¹		Time:	
Relinquished	by:		Date	5/22/14	Relinqui			<u></u>	Date:	1997
Received by:	V 1		Time	10.00	Receive	d by:			Time:	80.53

Environmental and Analytical Services-Since 1994 California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

Prepared for: Freeport McMoRan O&G

C/O: LTS environmental, Inc.

704 Adirondack Avenue Ventura, CA 93003 Attn: Steve Lawry

Report Date: June 5, 2014 Laboratory Number: 141404

Project Name: PF Hermosa NPDES Produced Water weekly

Sampled by: Client

On May 30, 2014, Capco Analytical Services, Inc.(CAS), received four(4) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

SAMPLE DESCRIPTION	5			CAS LAB NUMBER II
PRODUCED WATER		10	98	141404-01
PRODUCED WATER				141404-02*
PRODUCED WATER				141404-03*
PRODUCED WATER		7		141404-04*
PRODUCED WATER				

*HOLD PER CUSTOMER'S REQUEST

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D.

Director - Analytical Operations

cc: PF Hermosa @-Orcutt
Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

This report shall not be reproduced except in full without the written approval of CAS. The test results reported represent only the item being tested and may not represent the entire material from which the sample was taken.



CERTIFICATE OF ANALYSIS

Client: From CAS LAB NO Analyst: G		O&G (PF	Hermosa)	Date I Date I	Received:	05/29/14 05/30/14 06/04/14 Water
		OIL &	GREASE ANALY METHOD 1664			
CAS LAB #	Sample ID		RESU (mg	ILTS I/L) DE	MDL (mg/L)	PQL (mg/L)
141404-01	Produced Water			4 .		

QUALITY CONTROL DATA

141404-MB Method Blank ND

ו 1 1 תא

LTS EN	VIRONMENTAL, INC.	Report to:	FM 0&0	c/o Steve L	awry	Bill to: FM O&G
	dirondack Avenue				y	Accounts Payable
Ve	ntura, CA 93003	i				
	805-644-4560	ĺ				700 Milam Ste 3100 6/6 6/9
FACILITY:	Pl. Hors	205/1			*******	SUBMITTED TO: Capco Analytical
COLLECTOR	R: LTS / C	Jaakins				REPORT TO: PHONE:
PROJECT/C		duced Water \	Weeklu			FAX:
RESULTS R						COPIES TO: Platform Supervisor PHONE: 644-4560
RESULTS B	BY: PHONE:	FAX:		•		201 S. Broadway PHONE:
0444774						Orcutt, CA 93455 cc: Ruth Juris
SAMPLE	SAMPLE ID/LOCATION	GRAB/	VOLUME	DATE/TIME	PRE-	ANALYSES REQUESTED (METHOD)
NO.	Produced water	COMP.	12	COLLECTED	SERV.	
1	Produced water	Cuch		05/29/14		0&G (EPA 1664) RUN
		Grab	1	0015	HCI	O&G (EPA 1664)
2	4			0645	}	1-6010
					<u> </u>	1010
3				0715		Hold
4				SUL.		
7	•			045		Hold
				ļ		8
		ľ	ł	1	j	i
				ĺ		
		1				
Comments:	Run #1; Hold 2-4	4-6-6-41-	(01)			
	······································	A PS	(046)	1:09(2	21,2	109(412)
		80		···	-	
Relinguished b	Dy: Cale Mr.	6 yours	Date	57301/4	Relinquishe	
Received by:	- de	-	-		Received by	
	0	0			ACCOLACT D	y: Time:
Relinquished b	у:		Date:	le le	Relinquishe	d by:
Received by:			Time:		seceived by	
						Time:



June 2, 2014

Freeport McMoRan O&G Attn: Ruth Juris 201 S. Broadway Orcutt, CA 93455

Dear Ms. Juris:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms EPA/600/R-95-136, 1995 "All acceptability criteria were met. This is a valid test." Results were as follows:

CLIENT:

Freeport McMoRan O&G

SAMPLE I.D.:

Produced Water Discharge (Platform Hermosa)

DATE RECEIVED:

13 May - 14

ABC LAB. NO.:

LTS0514.176

CHRONIC TOPSMELT SURVIVAL & GROWTH BIOASSAY

IWC CONCENTRATION = 0.0478%

TST RESULT

SURVIVAL

PASS

GROWTH

PASS

Yours very truly

Scott Johnson

Laboratory Director

CETIS Summary Report

Report Date:

29 May-14 10:40 (p 1 of 2)

Test Code:

								Test Code:	LTS0514	.176tops 0	7-3725-331
Pacific Topsn	neit 7-d Surviva	l and G	rowth Test					Aquat	ic Bioassay &		
Batch ID: Start Date:	01-0669-5721 14 May-14 14:0		Test Type: Protocol:	Growth-Surviv				Analyst: Diluent: I	_aboratory Sea	water	
Ending Date:	21 May-14 12:0	00	Species:	Atherinops affi	nis				Not Applicable		
Duration:	6d 22h		Source:	Aquatic Biosys	items, CO		1	Age:	фриссия		
Sample ID:	07-5919-5927		Code:	LTS0514.176t	•		(Client: I	TS Environme	ental, Inc.	
	13 May-14 06:0		Material:	Sample Water			F	Project: I	Platform Hermo	osa	
Receive Date:	13 May-14 15:2	25	Source:	Bioassay Repo	ort			_			
Sample Age:	32h (1.6 °C)	:	Station:	Produced Wat	er Discharge	(Platform F	łerm				
Comparison S	Summary				-				~		
Analysis ID	Endpoint		NOEL		TOEL	PMSD	TU	Metho	d		
21-4679-5770			0.0717	7 >0.0717	NA	8.76%	1395	Steel N	Many-One Ran	k Sum Test	
00-0866-3942	Mean Dry Biom	ass-mg	0.0717	7 >0.0717	NA	23.7%	1395		Many-One Ran		
Point Estimate	e Summary										
Analysis ID	Endpoint		Level	<u>%</u>	95% LCL	95% UCL		Metho	d		
07-2375-7638	7d Survival Rat	е	EC5	>0.0717	N/A	N/A	<1395	Linear	interpolation (I	CPIN)	
			EC10	>0.0717	N/A	N/A	<1395	5		•	
			EC15	>0.0717	N/A	N/A	<1395	5			
			EC20	>0.0717	N/A	N/A	<1395	5			
			EC25	>0.0717	N/A	N/A	<1395				
			EC40	>0.0717	N/A	N/A	<1395	5			
4 0074 4000	Mana Dav Diam		EC50	>0.0717	N/A	N/A	<1395			9	
4-0271-4260	Mean Dry Biom	ass-mg	IC5	>0.0717	N/A	N/A	<1395		interpolation (I	CPIN)	£
			IC10	>0.0717	N/A	N/A	<1395	5			
			IC15	>0.0717	N/A	N/A	<1395	j			4-7
			IC20	>0.0717	N/A	N/A	<1395	5			
			IC25	>0.0717	N/A	N/A	<1395			20	
			IC40	>0.0717	N/A	N/A	<1395			-	ki'
			IC50	>0.0717	N/A	N/A	<1395 	i 		*6	
est Acceptab	•										
nalysis ID 7-2375-7638	Endpoint 7d Survival Rate		Attribu Contro		Test Stat		ts	Overla			
1-4679-5770	7d Survival Rate	-	Contro	•	1	0.8 - NL		Yes		cceptability	
0-0866-3942	Mean Dry Bioma	_	Contro		1.06	0.8 - NL		Yes		cceptability	
	Mean Dry Bioma	•	Contro	•	1.06	0.85 - NL		Yes		cceptability	
	7d Survival Rate		PMSD	Поэр	0.08762	0.85 - NL		Yes		cceptability	
	Mean Dry Bioma		PMSD		0.06762	NL - 0.25 NL - 0.5		No No		cceptability cceptability	
d Survival Ra	te Summary			·					1 03303 7	Cocptability	
	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std En	r Std Dev	CV%	%Effect
	Negative Control		1	1	1	1 .	1	0	0	0.0%	
.0239		5	1	1	1	1 8	1	0	0	0.0%	0.0% 0.0%
.0478		5	0.96	0.8489	1	0.8	1	0.04	0.08944	9.32%	4.0%
.0717		5	1	1	1	1	1	0	0	0.0%	0.0%
	B	arv								· - · · · · · ·	
lean Dry Bion	nass-mg əumma	•									
-% (Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std En	r Std Dev	CV%	%Effect
:-% (=	Count	1.06	95% LCL 0.8509	95% UCL 1.268	Min 0.78	Max 1.174	Std En 0.0751			
:-% (! .0239	Control Type	Count 5 5	1.06 1.171						6 0.1681	CV% 15.86% 11.37%	0.0%
	Control Type	Count 5	1.06	0.8509	1.268	0.78	1.174	0.0751	6 0.1681 2 0.1331	15.86%	%Effect 0.0% -10.49% -4.72%



CETIS Summary Report

Report Date:

29 May-14 10:40 (p 2 of 2)

Test Code:

LTS0514.176tops | 07-3725-3313

Pacific To	psmelt 7-d Survival	and Grov	wth Test				Aquatic Bioassay & Consulting Labs, Inc.
7d Surviva	I Rate Detail					V	
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	Negative Control	1	1	1	1	1	
0.0239		1	1	1	1	1	
0.0478		1	1	1	1	0.8	
0.0717		1	1	1	1	1	
Mean Dry	Biomass-mg Detail		7				
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	Negative Control	1.148	1.024	1.172	0.78	1.174	
0.0239		1.248	1.238	0.936	1.192	1.24	
0.0478		1.196	1.266	1.054	1.266	0.766	
0.0717		1.066	0.832	1.332	1.216	1.204	
7d Surviva	I Rate Binomials					···	
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	Negative Control	5/5	5/5	5/5	5/5	5/5	
0.0239		5/5	5/5	5/5	5/5	5/5	
0.0478		5/5	5/5	5/5	5/5	4/5	
0.0717		5/5	5/5	5/5	5/5	5/5	

Analyst:____ QA:___

Report Date:

29 May-14 10:40 (p 1 of 4)

Test Code:

LTS0514.176tops | 07-3725-3313

Pacific	Topsmelt 7-	d Survival and	Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

CETISv1.8.7

Analysis ID: 21-4679-5770 Endpoint: 7d Survival Rate CETIS Version:

Analyzed: 29 May-14 10:39 Analysis: Nonparametric-Control vs Treatments Official Results: Yes

Sample ID: 07-5919-5927 Code: LTS0514.176tops Client: LTS Environmental, Inc.
Sample Date: 13 May-14 06:00 Material: Sample Water Project: Platform Hermosa
Receive Date: 13 May-14 15:25 Source: Bioassay Report

Receive Date: 13 May-14 15:25 Source: Bioassay Report
Sample Age: 32h (1.6 °C) Station: Produced Water Discharge (Platform Herm

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C>T	NA	NA	8.76%	0.0717	>0.0717	NA	1395

Steel Many-One Rank Sum Test

Control vs	C-9	6	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(a:5%)
Negative Control	0.0	239	27.5	17	1	8	0.7500	Asymp	Non-Significant Effect
	0.0	478	25	17	1	8	0.5314	Asymp	Non-Significant Effect
	0.0	717	27.5	17	1	8	0.7500	Asymp	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(a:5%)
Between	0.008506184	0.002835395	3	1	0.4182	Non-Significant Effect
Error	0.04536632	0.002835395	16			•
Total	0.0538725		19			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(a:1%)
Variances	Mod Levene Equality of Variance	1	5.953	0.4262	Equal Variances
Variances	Levene Equality of Variance	7.111	5.292	0.0030	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.4969	0.866	< 0.0001	Non-normal Distribution
Distribution	Kolmogorov-Smirnov D	0.45	0.2235	<0.0001	Non-normal Distribution
Distribution	D'Agostino Skewness	4.576	2.576	< 0.0001	Non-normal Distribution
Distribution	D'Agostino Kurtosis	4.175	2.576	< 0.0001	Non-normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	38.38	9.21	< 0.0001	Non-normal Distribution
Distribution	Anderson-Darling A2 Normality	4.585	3.878	<0.0001	Non-normal Distribution

7d Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	5	1	1	1	1	1	1	0	0.0%	0.0%
0.0239		5	1	1	1	1	1	1	0	0.0%	0.0%
0.0478		5	0.96	0.8489	1	1	0.8	1	0.04	9.32%	4.0%
0.0717		5	1	1	1	1	1	1	0	0.0%	0.0%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Contr	5	1.345	1.345	1.346	1.345	1.345	1.345	0 ,	0.0%	0.0%
0.0239		5	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	0.0%
0.0478		5	1.298	1.165	1.43	1.345	1.107	1.345	0.04763	8.21%	3.54%
0.0717		5	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	0.0%

7d Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1	1	1	1	1
0.0239	59	1	1	1	1	1
0.0478		1	1	1	1	0.8
0.0717		1	1	1	1	1

Analyst: ____ QA:__

Report Date:

29 May-14 10:40 (p 2 of 4)

Test Code:

LTS0514.176tops | 07-3725-3313

Pacific	Topsmelt	7-d	Survival	and	Growth	Test
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Aquatic Bioassay & Consulting Labs, Inc.

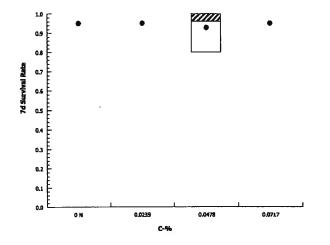
Analysis ID:	21-4679-5770	Endpoint:	7d Survival Rate	CETIS Version:	CETISv1.8.7
Analyzed:	29 May-14 10:39	Analysis:	Nonparametric-Control vs Treatments	Official Results:	Yes

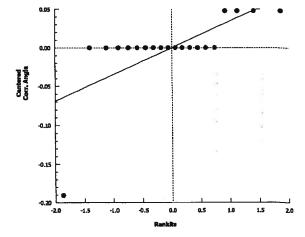
Angular (Corrected) Transformed Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1.345	1.345	1.345	1.345	1,345
0.0239		1.345	1.345	1.345	1.345	1.345
0.0478		1.345	1.345	1.345	1.345	1.107
0.0717		1.345	1.345	1.345	1.345	1.345

7d Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	5/5	5/5	5/5	5/5	5/5
0.0239		5/5	5/5	5/5	5/5	5/5
0.0478		5/5	5/5	5/5	5/5	4/5
0.0717		5/5	5/5	5/5	5/5	5/5





Report Date:

29 May-14 10:40 (p 3 of 4)

Test Code:

LTS0514.176tops | 07-3725-3313

											1 Otoba (C	
Pacific Tops	melt 7-d Survival	and Gro	wth Test						Aquatic	Bioassay & (Consulting	Labs, In
Analysis ID:	00-0866-3942	Er	-	an Dry Biom	•			CET	IS Version	: CETISV1.	.8.7	
Analyzed:	29 May-14 10:3	89 Ar	nalysis: No	nparametric-	Control vs	Tr	eatments	Offic	cial Results	: Yes		
Sample ID:	07-5919-5927	Co	ode: LT	S0514.176to	ps			Clie	nt: LTS	S Environmen	ntal Inc	
Sample Date:	: 13 May-14 06:0	O Ma	aterial: Sa	mple Water	•			Proj		tform Hermo		
Receive Date	: 13 May-14 15:2	5 S c		assay Repo	rt						54	
Sample Age:	32h (1.6 °C)	St		oduced Wate		je ((Platform H	lerm				
Data Transfo	rm	Zeta	Alt Hyp	Trials	Seed			PMSD	NOEL	LOEL	TOEL	ΤU
Untransforme	d	NA	C>T	NA	NA			23.7%	0.0717	>0.0717	NA	1395
Steel Many-O	ne Rank Sum Te	st				_						
Control	vs C-%		Test Stat	Critical	Ties D	F	P-Value	P-Type	Decision	(a:5%)		
Negative Cont	trol 0.0239		36	17	0 8		0.9968	Asymp		ificant Effect		
	0.0478		32	17	0 8		0.9606	Asymp	•	ificant Effect		
	0.0717		33	17	0 8		0.9773	Asymp	_	ificant Effect		
ANOVA Table	•								<u></u>			
Source	Sum Squa	res	Mean Sq	uare	DF		F Stat	P-Value	Decision	(α:5%)		
Between	0.0320597	9	0.010686	6	3		0.3366	0.7991	Non-Sign	ificant Effect	<u></u>	
Error	0.5079393		0.031746	2	16							
Total	0.5399991				19	_						
Distributional	Tests								, , , , , , , , , , , , , , , , , , , 		· · · · ·	
Attribute	Test		<u> </u>	Test Stat	Critical		P-Value	Decision	(α:1%)			
Variances	Bartlett Ed	- •		0.8036	11.34		0.8486	Equal Var	iances			
Variances		•	ty of Variance	0.2411	5.953		0.8660	Equal Var	iances			
Variances	Levene Ed	quality of \	Variance	0.4231	5.292		0.7390	Equal Var	iances			
Distribution	Shapiro-W	/ilk W No	rmality	0.845	0.866		0.0044	Non-norm	al Distributi	ion		
Distribution •	Vales and			0.2595	0.2235		0.0010		al Distributi			
	Kolmogore	ov-Smirno	w D	0.2090	V.ZZJJ			Non-norm		ion		
	D'Agostino			2.047	2.576		0.0407	Non-norm		ion		
	-	Skewne	ss						stribution	ion		
Distribution	D'Agostino D'Agostino	Skewne Kurtosis	ss	2.047 0.1726	2.576		0.0407	Normal D	istribution istribution	ion		
Distribution Distribution	D'Agostino D'Agostino D'Agostino	o Skewne o Kurtosis o-Pearson	ss:	2.047 0.1726	2.576 2.576		0.0407 0.8630	Normal Di Normal Di Normal Di	istribution istribution			
Distribution Distribution Distribution	D'Agostino D'Agostino D'Agostino	o Skewner o Kurtosis o-Pearson -Darling A	ss K2 Omnibus	2.047 0.1726 4.219	2.576 2.576 9.21		0.0407 0.8630 0.1213	Normal Di Normal Di Normal Di	stribution stribution stribution			
Distribution Distribution Distribution Mean Dry Blo C-%	D'Agostino D'Agostino D'Agostino Anderson- mass-mg Summa Control Type	Skewner Count Count Count Count	ss K2 Omnibus 2 Normality Mean	2.047 0.1726 4.219	2.576 2.576 9.21		0.0407 0.8630 0.1213	Normal Di Normal Di Normal Di	stribution stribution stribution		CV%	%Effec
Distribution Distribution Distribution Wean Dry Blo C-%	D'Agostino D'Agostino D'Agostino Anderson- mass-mg Summa	o Skewner o Kurtosis o-Pearson -Darling A ary Count	ss K2 Omnibus 2 Normality Mean 1.06	2.047 0.1726 4.219 1.53 95% LCL 0.8509	2.576 2.576 9.21 3.878 96% UCL 1.268		0.0407 0.8630 0.1213 <0.0001 Median 1.148	Normal Di Normal Di Normal Di Non-norm	stribution istribution istribution al Distributi	ion	CV% 15.86%	%Effec 0.0%
Distribution Distribution Distribution Mean Dry Bio C-% D.0239	D'Agostino D'Agostino D'Agostino Anderson- mass-mg Summa Control Type	o Skewner o Kurtosis o-Pearson Darling A ary Count 5	K2 Omnibus 2 Normality Mean 1.06 1.171	2.047 0.1726 4.219 1.53 95% LCL 0.8509 1.006	2.576 2.576 9.21 3.878		0.0407 0.8630 0.1213 <0.0001	Normal Di Normal Di Normal Di Nors-norm	Istribution istribution istribution al Distributi	on Std Err	15.86% 11.37%	
Distribution Distribution Distribution Mean Dry Bio C-% 0.0239 0.0478	D'Agostino D'Agostino D'Agostino Anderson- mass-mg Summa Control Type	o Skewner o Kurtosis o-Pearson Darling A ary Count 5 5 5	Mean 1.06 1.171 1.11	2.047 0.1726 4.219 1.53 95% LCL 0.8509 1.006 0.848	2.576 2.576 9.21 3.878 95% UCL 1.268 1.336 1.371		0.0407 0.8630 0.1213 <0.0001 Median 1.148	Normal Di Normal Di Normal Di Non-normal Min 0.78	istribution istribution istribution ial Distribution Max 1.174	Std Err 0.07516	15.86%	0.0%
Distribution Distribution Distribution Mean Dry Bio C-% 0.0239 0.0478	D'Agostino D'Agostino D'Agostino Anderson- mass-mg Summa Control Type	o Skewner o Kurtosis o-Pearson Darling A ary Count 5	K2 Omnibus 2 Normality Mean 1.06 1.171	2.047 0.1726 4.219 1.53 95% LCL 0.8509 1.006	2.576 2.576 9.21 3.878 95% UCL 1.268 1.336		0.0407 0.8630 0.1213 <0.0001 Median 1.148 1.238	Normal Di Normal Di Norn-norm Min 0.78 0.936	stribution istribution istribution al Distribution Max 1.174 1.248	Std Err 0.07516 0.05952	15.86% 11.37%	0.0% -10.499 -4.72%
Distribution Distribution Distribution Mean Dry Bio C-% D.0239 D.0478 D.0717	D'Agostino D'Agostino D'Agostino Anderson- mass-mg Summa Control Type	Count 5 5 5 5 5 5 5	Mean 1.06 1.171 1.11	2.047 0.1726 4.219 1.53 95% LCL 0.8509 1.006 0.848	2.576 2.576 9.21 3.878 95% UCL 1.268 1.336 1.371		0.0407 0.8630 0.1213 <0.0001 Median 1.148 1.238 1.196	Normal Di Normal Di Non-normal Min 0.78 0.936 0.766	stribution istribution istribution al Distribution Max 1.174 1.248 1.266	Std Err 0.07516 0.05952 0.09422	15.86% 11.37% 18.99%	0.0% -10.499 -4.72%
Distribution Distribution Distribution Mean Dry Blo C-% 0.0239 0.0478 0.0717 Mean Dry Bio	D'Agostino D'Agostino D'Agostino Anderson- mass-mg Summa Control Type Negative Control mass-mg Detail Control Type	Count Co	Mean 1.06 1.171 1.11	2.047 0.1726 4.219 1.53 95% LCL 0.8509 1.006 0.848	2.576 2.576 9.21 3.878 95% UCL 1.268 1.336 1.371		0.0407 0.8630 0.1213 <0.0001 Median 1.148 1.238 1.196	Normal Di Normal Di Non-normal Min 0.78 0.936 0.766	stribution istribution istribution al Distribution Max 1.174 1.248 1.266	Std Err 0.07516 0.05952 0.09422	15.86% 11.37% 18.99%	0.0% -10.499 -4.72%
Distribution Distribution Distribution Mean Dry Blo C-% 0.0239 0.0478 0.0717 Mean Dry Bio	D'Agostino D'Agostino D'Agostino Anderson- mass-mg Summa Control Type Negative Control	Count Co	Mean 1.06 1.171 1.11	2.047 0.1726 4.219 1.53 95% LCL 0.8509 1.006 0.848 0.8923	2.576 2.576 9.21 3.878 95% UCL 1.268 1.336 1.371 1.368		0.0407 0.8630 0.1213 <0.0001 Median 1.148 1.238 1.196 1.204	Normal Di Normal Di Non-normal Min 0.78 0.936 0.766	stribution istribution istribution al Distribution Max 1.174 1.248 1.266	Std Err 0.07516 0.05952 0.09422	15.86% 11.37% 18.99%	0.0% -10.499 -4.72%
Distribution Distribution Distribution Mean Dry Bio C-% D.0239 D.0478 D.0717 Mean Dry Bio C-%	D'Agostino D'Agostino D'Agostino Anderson- mass-mg Summa Control Type Negative Control mass-mg Detail Control Type	Count Co	Mean 1.06 1.171 1.13 Rep 2	2.047 0.1726 4.219 1.53 95% LCL 0.8509 1.006 0.848 0.8923	2.576 2.576 9.21 3.878 95% UCL 1.268 1.336 1.371 1.368		0.0407 0.8630 0.1213 <0.0001 Median 1.148 1.238 1.196 1.204	Normal Di Normal Di Non-normal Min 0.78 0.936 0.766	stribution istribution istribution al Distribution Max 1.174 1.248 1.266	Std Err 0.07516 0.05952 0.09422	15.86% 11.37% 18.99%	0.0% -10.499 -4.72%
C-% 0 0.0239 0.0478 0.0717	D'Agostino D'Agostino D'Agostino Anderson- mass-mg Summa Control Type Negative Control mass-mg Detail Control Type	Count Co	Mean 1.06 1.171 1.11 1.13 Rep 2 1.024	2.047 0.1726 4.219 1.53 95% LCL 0.8509 1.006 0.848 0.8923 Rep 3 1.172	2.576 2.576 9.21 3.878 95% UCL 1.268 1.336 1.371 1.368 Rep 4		0.0407 0.8630 0.1213 <0.0001 Median 1.148 1.238 1.196 1.204 Rep 5 1.174	Normal Di Normal Di Non-normal Min 0.78 0.936 0.766	stribution istribution istribution al Distribution Max 1.174 1.248 1.266	Std Err 0.07516 0.05952 0.09422	15.86% 11.37% 18.99%	0.0% -10.49%

Analyst: ____ QA:____

Report Date:

29 May-14 10:40 (p 4 of 4)

Test Code:

LTS0514.176tops | 07-3725-3313

Pacific Topsmelt 7-d Survival and Growth Test

Aquatic Bloassay & Consulting Labs, Inc.

Analysis ID: Analyzed:

: 00-0866-3942 29 May-14 10:39

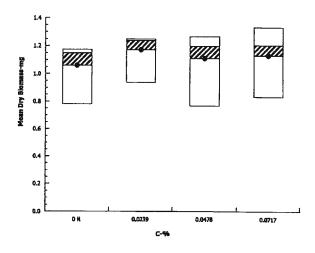
Analysis:

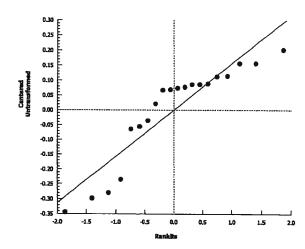
Endpoint: Mean Dry Biomass-mg

Nonparametric-Control vs Treatments

CETIS Version: CET Official Results: Yes

CETISv1.8.7





Report Date:

29 May-14 10:40 (p 1 of 3)

Test Code:

LTS0514.176tops | 07-3725-3313

Pacific	Topsm	elt 7-d Survival	and G	rowti	1 Test						Aquatic E	Bioassay & C	Consultin	g Labs, Ind
Analysi Analyze		07-2375-7638 29 May-14 10:4	0	Endr Anal	ooint: ysis:	7d Survival Linear Inter		CPIN)			IS Version: ial Results		8.7	
Sample	ID:	07-5919-5927		Code) :	LTS0514.17	6tops			Clie	nt: LTS	Environmer	tai, inc.	
Sample	Date:	13 May-14 06:0	0	Mate	rial:	Sample Wa	ter			Proj	ect: Plat	form Hermo	sa	
Receive	Date:	13 May-14 15:2	5	Sour	ce:	Bioassay R	eport							
Sample	Age:	32h (1.6 °C)		Stati	on:	Produced V	Vater Disc	harge (Plat	form He	rm				_
inear l	Interpol	ation Options												
(Trans	form	Y Transform		Seed		Resamples	Exp	95% CL	Metho	d				
inear		Linear		0		280	Ye:		Two-Po	oint Interp	olation			
oint E	stimate	s												
Level	%	95% LCL	95%	UCL	TU	95% L	CL 95%	UCL						
C5	>0.07	17 N/A	N/A		<1395	NA.	NA							
C10	>0.07	17 N/A	N/A		<1395	NA NA	NA							
C15	>0.07	17 N /A	N/A		<1395	i NA	NA							
C20	>0.07	17 N/A	N/A		<1395	i NA	NA							
C25	>0.07	7 N/A	N/A		<1395	NA NA	NA							
C40	>0.07	17 N/A	N/A		<1395	: NA	NA							
EC50	>0.07	17 N/A	N/A		<1395	i NA	NA							
d Sur	/ival Ra	te Summary					-	Calculated	Variate	(A/B)	_			
:-%	C	ontrol Type	Coun	ıt	Mean	Min	Max	Sto	Err	Std Dev	CV%	%Effect	Α	В
)	N	egative Control	5		1	1	1	0		0	0.0%	0.0%	25	25
0.0239			5		1	1	1	0		0	0.0%	0.0%	25	25
.0478			5		0.96	0.8	1	0.0	4	0.08944	9.32%	4.0%	24	25
.0717			5	_	1	1	1	0		0	0.0%	0.0%	25	25
'd Sur	/ival Ra	te Detail												
C-%	C	ontrol Type	Rep '	1	Rep 2	Rep 3	Rep	4 Re	p 5					
)	N	egative Control	1		1	1	1	1						
0.0239			1		1	1	1	1						
0.0478			1		1	1	1	0.8						
0.0717			1		1	1	1	1						
7d Sur	/ival Ra	te Binomials												
C-%	(Control Type	Rep '	1	Rep 2	Rep 3	Rep	4 Re	p 5					
)		Negative Contro	5/5		5/5	5/5	5/5	5/5		.5)				
0.0239			5/5		5/5	5/5	5/5	5/5						
0.0478			5/5		5/5	5/5	5/5	4/5						
0.0470														

Analyst: ____ QA:

Report Date:

29 May-14 10:40 (p 2 of 3)

Test Code:

LTS0514.176tops | 07-3725-3313

Pacific Topsmelt 7-d Survival and Growth Test

Aquatic Bloassay & Consulting Labs, Inc.

Analysis ID: Analyzed:

07-2375-7638 29 May-14 10:40

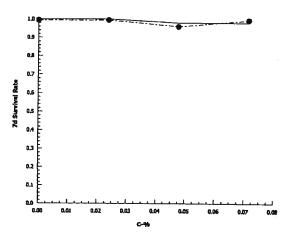
Endpoint: 7d Survival Rate

Analysis: Linear Interpolation (ICPIN)

CETIS Version:

CETISv1.8.7

Official Results: Yes



Report Date:

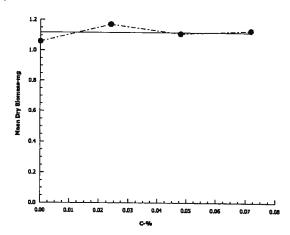
29 May-14 10:40 (p 3 of 3)

Test Code

S0514 176tons | 07-3725-3313

									Test	Code:	LTS0514.176tops 07-3725-3313
Pacific	Topsm	elt 7-d Surviva	and Gro	wth Test						Aquatic B	oassay & Consulting Labs, Inc.
Analys Analyz		14-0271-4260		dpoint:	Mean Dry Bion					S Version:	CETISv1.8.7
Arialyz	ea:	29 May-14 10:	39 An	alysis:	Linear Interpola	ation (ICPIN	I)		Offic	ial Results:	Yes
Sampl	e ID:	07-5919-5927	Co	de:	LTS0514.176to	ops			Clier	nt: LTS	Environmental, Inc.
Sampl	e Date:	13 May-14 06:	00 M a	terial:	Sample Water				Proje		orm Hermosa
Receiv	re Date:	13 May-14 15:	25 So	urce:	Bioassay Repo	ort					
Sampl	e Age:	32h (1.6 °C)	Sta	ation:	Produced Water	er Discharge	e (Plat	form Herm			
Linear	interpol	ation Options					· ·				
X Tran	sform	Y Transform	n Se	ed	Resamples	Exp 95%	CL	Method			
Linear		Linear	186	34755	280	Yes		Two-Point	Interp	olation	
Point E	stimate	3									
Level	%	95% LCL	95% UCL	. TU	95% LCL	95% UCL					
IC5	>0.071	7 N/A	N/A	<1395	NA NA	NA					
IC10	>0.071		N/A	<1395	NA NA	NA					
IC15	>0.071		N/A	<1395	i NA	NA					
IC20	>0.071	7 N/A	N/A	<1395	i NA	NA					
IC25	>0.071		N/A	<1395	NA NA	NA					
IC40	>0.071		N/A	<1395	NA NA	NA					
IC50	>0.071	7 N/A	N/A	<1395	NA NA	NA					
Mean D	ry Biom	ass-mg Summ	nary		-	Ca	lculat	ed Variate	4		
C-%_	Co	ntrol Type	Count	Mean	Min	Max	Std	Err Std	Dev	CV%	%Effect
0	Ne	gative Control	5	1.06	0.78	1.174	0.07	516 0.10	381		0.0%
0.0239			5	4.171	0.936	1.248	0.05				-10.49%
0.0478			5	1.11	0.766	1.266	0.09	422 0.2°	107	18.99%	-4.72%
0.0717			5	1.13	0.832	1.332	0.08	561 0.19	914	16.94%	-6.64%
Mean D	ry Biom	ass-mg Detail									
C-%	Co	ntrol Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep	5			
)	Ne	gative Control	1.148	1.024	1.172	0.78	1.17				
0.0239			1.248	1.238	0.936	1.192	1.24				
0.0478			1.196	1.266	1.054	1.266	0.76				
0.0717			1.066	0.832	1.332	1.216	1.20				
								•			

Graphics



Analyst:____ QA:

Report Date:

29 May-14 10:40 (p 1 of 2)

Test Code:

LTS0514.176tops | 07-3725-3313

Pacific Topsn	nelt 7-d Surviva	l and G	rowth Test					Aqua	tic Bioassay &	Consultin	g Labs, Inc.
Batch ID:	01-0669-5721		Test Type:	Growth-Surviva	al (7d)			Analyst:			
Start Date:	14 May-14 14:	00	Protocol:	EPA/600/R-95	/136 (1995)			Diluent:	Laboratory Sea	water	
Ending Date:	21 May-14 12:	00	Species:	Atherinops affi	nis			Brine:	Not Applicable		
Duration:	6d 22h		Source:	Aquatic Biosys	items, CO			Age:			
Sample ID:	07-5919-5927		Code:	LTS0514.176to	ops			Client:	LTS Environme	ntal, Inc.	
Sample Date:	13 May-14 06:	00	Material:	Sample Water				Project:	Platform Hermo	osa	
Receive Date:	: 13 May-14 15:	25	Source:	Bioassay Repo	ort						
Sample Age:	32h (1.6 °C)		Station:	Produced Wat	er Discharge	e (Platfor	m Herm				
Dissolved Oxy	ygen-mg/L		<u> </u>								
C-%	Control Type	Count	t Mea n	95% LCL	95% UCL	Min	Max	Std E	rr Std Dev	CV%	QA Count
0	Negative Contr	8	6.063	5.725	6.4	5.4	6.5	0.142	6 0.4033	6.65%	0
0.0239		8	6.163	5.88	6.445	5.5	6.5	0.119	4 0.3378	5.48%	0
0.0478		8	6.138	5.838	6.437	5.5	6.7	0.126	7 0.3583	5.84%	0
0.0717		8	6.213	5.954	6.471	5.6	6.7	0.109	3 0.3091	4.98%	0
Overall		32	6.144			5.4	6.7				0 (0%)
pH-Units											
C-%	Control Type	Count	t Mean	95% LCL	95% UCL	Min	Max	Std E	rr Std Dev	CV%	QA Count
0	Negative Contr	8	7.525	7.451	7.599	7.4	7.6	0.031	34 0.08864	1.18%	0
0.0239		8	7.588	7.534	7.641	7.5	7.7	0.022	66 0.06409	0.84%	0
0.0478		8	7.563	7.5	7.625	7.5	7.7	0.026	3 0.0744	0.98%	0
0.0717		8	7.588	7.534	7.641	7.5	7.7	0.022	66 0.06409	0.84%	0
Overall		32	7.566			7.4	7.7		1		0 (0%)
Salinity-ppt	•								1		
C-%	Control Type	Count	t Mean	95% LCL	95% UCL	Min	Max	Std E	rr Std Dev	CV%	QA Count
0	Negative Contr	8	34	34	34	34	34	0	0	0.0%	0
0.0239		8	34	34	34	34	34	0	0	0.0%	0
0.0478		8	34	34	34	34	34	0	0	0.0%	0
0.0717		8	34	34	34	34	34	0	0	0.0%	0
Overali		32	34			34	34				0 (0%)
Temperature-	°C										
C-%	Control Type	Coun		95% LCL	95% UCL		Max			CV%	QA Coun
0	Negative Contr		21	21	21	21	21	0	0	0.0%	0
0.0239		8	21	21	21 $_{\psi}$	21	21	0	0	0.0%	0
0.0478		8	21	21	21	21	21	0	0	0.0%	0
0.0717	<u> </u>	8	21	21	21	21	21	0	0	0.0%	0
Overall	**	32	21			21	21				0 (0%)

CETIS Measurement Report

Report Date:

29 May-14 10:40 (p 2 of 2)

Test Code:

LTS0514.176tops | 07-3725-3313

								at acat.	E100014.1100po 01-0120-0010
Pacific Top	smelt 7-d Surviva	l and Gr	owth Test			Aquatio	Bioassay & Consulting Labs, Inc.		
Dissolved (Oxygen-mg/L					-			
C-%	Control Type	1	2	3	4	5	6	7	8
0	Negative Contr	6.4	6.3	6.1	6.1	6.5	6.2	5.4	5.5
0.0239		6.3	6.5	6.5	6.1	6.4	6	6	5.5
0.0478		6.3	6.7	6.4	6.1	6.2	6	5.9	5.5
0.0717		6.4	6.7	6.3	6.2	6.2	6.2	6.1	5.6
pH-Units									
C-%	Control Type	1	2	3	4	5	6	7	8
0	Negative Contr	7.6	7.5	7.5	7.6	7.6	7.6	7.4	7.4
0.0239		7.6	7.6	7.5	7.6	7.7	7.6	7.6	7.5
0.0478		7.6	7.5	7.5	7.5	7.7	7.6	7.6	7.5
0.0717		7.6	7.6	7.5	7.6	7.7	7.6	7.6	7.5
Salinity-pp	t .						-		
C-%	Control Type	1	2	3	4	5	6	7	8
0	Negative Contr	34	34	34	34	34	34	34	34
0.0239		34	34	34	34	34	34	34	34
0.0478		34	34	34	34	34	34	34	34
0.0717		34	34	34	34	34	34	34	34
Temperatu	re-°C								
C-%	Control Type	1	2	3	4	5	6	7	8
0	Negative Contr	21	21	21	21	21	21	21	21
0.0239		21	21	21	21	21	21	21	21
0.0478		21	21	21	21	21	21	21	21
0.0717		21	21	21	21	21	21	21	21

Analyst: QA:



June 2, 2014

Freeport McMoRan O&G Attn: Ruth Juris 201 S. Broadway Orcutt, CA 93455

Dear Ms. Juris:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in Short-Term Methods for Measuring the Chronic Toxicity of Effluents and Receving Waters to West Coast Estuarine Organisms, EPA/R-95/136. "All acceptability criteria were met. This is a valid test." Results were as follows:

CLIENT:

Freeport McMoRan O&G

SAMPLE I.D.:

Produced Water Discharge (Platform Hermosa)

DATE RECEIVED:

13 May - 14

ABC LAB. NO.:

LTS0514.176

CHRONIC KELP GERMINATION AND GROWTH BIOASSAY

IWC CONCENTRATION = 0.0478%

TST RESULT

Germination

PASS

Tube Length

PASS

Yours very truly

Laboratory Director

Report Date:

02 Jun-14 12:11 (p 1 of 2)

Test Code:

LTS0514.176kip | 02-0630-0531

	 								<u></u>	L100014.	1100000 102	-0000-000
Macrocystis G	Sermination and	d Germ Tube	Growt	th Test			Aquatic Bioassay & Consulting Labs, Inc.					
Batch ID:	09-6886-5444	Test 1		Growth-Germina				Analyst:				
tart Date:	14 May-14 16:1	11 Proto	col:	EPA/600/R-95/1	36 (1995)			Diluent:	Labor	atory Seaw	ater	
inding Date:	16 May-14 16:1	10 Speci	es:	Macrocystis pyri	ifera			Brine:	Not A	pplicable		
Ouration:	48h	Source	:e:	Aquatic Bioassa	y Labs Coll	ection		Age:				_
ample ID:	05-7455-2604	Code	:	LTS0514.176klp)			Client:	LTS E	Environment	tal, Inc.	
ample Date:	13 May-14 06:0	00 Mater	ial:	Sample Water				Project:	Platfo	rm Hermos	a	
Receive Date:	13 May-14 15:2	25 Sour c	:e:	Bioassay Repor	t							
ample Age:	34h (1.6 °C)	Statio	n:	Produced Water	r Discharge	(Platform H	lerm					
omparison S	lummary											
nalysis (D	Endpoint		NOEL	LOEL	TOEL	PMSD	TU	Meti	hod			
3-5900-2870	Germination Ra	ate	0.717	>0.717	NA	2.51%	139.	5 Dun	nett Mu	Itiple Comp	arison Tes	
1-4485-2762	Mean Length		0.717	>0.717	NA	3.42%	139.	5 Duni	nett Mu	ıltiple Comp	arison Tes	
Point Estimate	e Summary											
Analysis ID	Endpoint		Level	%	95% LCL	95% UCL		Meti				
17-6488-8532	Germination Ra		EC5	>0.717	N/A	N/A	<139		ar Intei	polation (IC	PIN)	
			EC10	>0.717	N/A	N/A	<139					
			EC15	>0.717	N/A	N/A	<139					
			EC20	>0.717	N/A	N/A	<139					
			EC25	>0.717	N/A	N/A	<139					
			EC40	>0.717	N/A	N/A	<139					
			EC50	>0.717	N/A	N/A	<139	3.5				
3-7025-1225	Mean Length		IC5	>0.717	N/A	N/A	<139		ar Inte	rpolation (IC	PIN)	
			IC10	>0.717	N/A	N/A	<139	3.5				
			IC15	>0.717	N/A	N/A	<139	3.5				
			IC20	>0.717	N/A	N/A	<139	∂. 5				
			IC25	>0.717	N/A	N/A	<139	9.5				
			IC40	>0.717	N/A	N/A	<139	∂. 5				
2			IC50	>0.717	N/A	N/A	<139). 5				
Test Acceptab	illty											
Analysis ID	Endpoint		Attrib			TAC Lim	its		riap	Decision		
3-5900-2870	Germination Ra			ol Resp	0.904	0.7 - NL		Yes			ceptability	
7-6488-8532				ol Resp	0.904	0.7 - NL		Yes			ceptability	
3-7025-1225	Mean Length			ol Resp	16	10 - NL		Yes			ceptability	
21-4485-2762				ol Resp	16	10 - NL		Yes			ceptability	
	Germination Ra		PMSD		0.02505	NL - 0.2		No			ceptability	
	Mean Length		PMSD)	0.03415	NL - 0.2		No		Passes Ad	ceptability	Criteria
	Rate Summary	Court	Maar	059/ 1.01	059/ 1101	B#I:-	14	. 64-3	E	Ctd Dav	CV0'	0/ -22 -
	Control Type		Mean	95% LCL		Min	Max		9274	Std Dev	CV%	%Effec
	Negative Contro		0.904	0.8783	0.9297	0.88	0.93			0.02074	2.29%	0.0%
0.0239			0.906	0.8852	0.9268	0.88	0.92		07483	0.01673	1.85%	-0.22%
).0478			0.91	0.9012	0.9188	0.9	0.92			0.007071	0.78%	-0.66%
0.717	B	5	0.9	0.8804	0.9196	0.88	0.92	. 0.00	07071	0.01581	1.76%	0.44%
flean Length : `.∘∠	Summary Control Type	Count	Moor	95% LCL	95% UCL	Min	Max	, 61-1	Err	Std Dev	CV%	0/ E86
			Mean				Max					%Effec
	Negative Contro		16	15.35 45.01	16.65	15.5 15.0	16.7			0.5244	3.28%	0.0%
0.0239 0.0478			16.14	15.91 15.7	16.37	15.9	16.4		8124 52	0.1817	1.13%	-0.88%
1 1 1/1 / X		5	16.12	15.7	16.54	15.8	16.7	7 0.19	5 3	0.3421	2.12%	-0.75%
).717			16.18	15.66	16.7	15.7	16.7		881	0.4207	2.6%	-1.13%

CETIS Summary Report

Report Date:

02 Jun-14 12:11 (p 2 of 2)

Test Code:

LTS0514.176klp | 02-0630-0531

							rest code:	L130914.170kip 02-0030-0031	
Macrocys	tis Germination and	Germ Tu	be Growth	Test			Aquatic Bioassay & Consulting Labs, Inc		
Germinati	on Rate Detail								
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5			
0	Negative Control	0.92	0.88	0.9	0.89	0.93			
0.0239		0.91	0.92	0.9	0.92	0.88			
0.0478		0.92	0.91	0.91	0.91	0.9			
0.717		0.92	0.88	0.91	0.89	0.9			
Mean Len	gth Detail								
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5			
0	Negative Control	15.6	15.8	15.5	16.7	16.4			
0.0239		16.4	16.1	16.2	16.1	15.9			
0.0478		15.8	16	16.1	16	16.7			
0.717		16.7	15.7	16.4	15.8	16.3			
Germinati	on Rate Binomials								
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5			
0	Negative Control	92/100	88/100	90/100	89/100	93/100			
0.0239		91/100	92/100	90/100	92/100	88/100			
0.0478		92/100	91/100	91/100	91/100	90/100			
0.717		92/100	88/100	91/100	89/100	90/100			

Report Date:

02 Jun-14 12:11 (p 1 of 4)

Test Code:

LTS0514.176kip | 02-0630-0531

Macrocystis	Germination an	d Germ Tu	be Growth	Test			103	Aguatic	Bioassay &		02-0630-05
Analysis ID:	13-5900-2870	Er	dpoint: G	ermination R	late		CET	ris Version			
Analyzed:	02 Jun-14 12:	10 A r	alysis: P	arametric-Co	ntrol vs Tre	atments		cial Result		1.0.7	
Sample ID:	05-7455-2604	Co	ode: L	TS0514.176k	dp		Clie	nt: IT	S Environme	ntal Inc	
Sample Date	: 13 May-14 06:	:00 M a	aterial: S	ample Water	•				atform Hermo	•	
Receive Date	e: 13 May-14 15:	:25 S o	urce: B	ioassay Repo	ort			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		,3 a	
Sample Age:	: 34h (1.6 °C)	Sta	ation: P	roduced Wat	er Discharg	e (Platform	Herm				
Data Transfo		Zeta	Alt Hyp	Trials	Seed		PMSD	NOEL	LOEL	TOEL	TU
Angular (Corr	rected)	NA	C>T	NA	NA		2.51%	0.717	>0.717	NA	139.5
Dunnett Mulf	tiple Compariso	n Test			· · · · · · · · · · · · · · · · · · ·			-	-		-
Control	vs C-%		Test Sta	t Critical	MSD D	F P-Value	P-Type	Decision	n(α:5%)		
Negative Con	trol 0.0239		-0.1684	2.227	0.038 8	0.8062	CDF		nificant Effect		
	0.0478		-0.5327	2.227	0.038 8	0.8980	CDF		ificant Effect		
	0.717	-	0.4324	2.227	0.038 8	0.5745	CDF		nificant Effect		
ANOVA Table	9										
Source	Sum Squ		Mean So		DF	F Stat	P-Value	Decision	n(a:5%)		
Between	0.000701		0.000233		3	0.3207	0.8103		ificant Effect		
Error	0.011670		0.000729	3822	16			•			
Total	0.012371	B1			19	•					
Distributiona	l Tests										
Attribute	Test	10 10		Test Stat	Critical	P-Value	Decision	(a:1%)			8
Variances		quality of V		3.493	11.34	0.3217	Equal Val	iances			
Variances			of Varianc	e 2.662	5.953	0.0955	Equal Val				
Variances		quality of V		2.377	5.292	0.1082	Equal Val				
Distribution		Wilk W Non		0.976	0.866	0.8731	Normal D				
Distribution		rov-Smirno		0.1028	0.2235	0.9618	Normal D	istribution			
Distribution		o Skewnes	S	0.09656	2.576	0.9231	Normai D	istribution			
Distribution		o Kurtosis		0.695	2.576	0.4871	Normal D	istribution			
Distribution Distribution			K2 Omnibu		9.21	0.7818	Normal D	istribution			
		-Darling A2	Normality	0.2137	3.878	0.8888	Normal D	istribution			
	Rate Summary										
C-%	Control Type Negative Contro	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0.0239	regaute Coilio	5	0.904 0.906	0.8783	0.9297	0.9	0.88	0.93	0.009273	2.29%	0.0%
0.0478		5	0.906	0.8852	0.9268	0.91	0.88	0.92	0.007483		-0.22%
).717		5	0.9	0.9012 0.8804	0.9188	0.91	0.9	0.92	0.003162		-0.66%
	ected) Transfor			0.0004	0.9196	0.9	0.88	0.92	0.007071	1.76%	0.44%
-ingular (COIT C-%	Control Type	nea summ Count	•	059/ 1.04	Are/ !!-	B.C P.					
)	Negative Contr	5	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
).0239	gaure coill	5	1.257 1.26	1.213	1.302	1.249	1.217	1.303	0.01597	2.84%	0.0%
.0478		5	1.266	1.225	1.295	1.266	1.217	1.284	0.01256	2.23%	-0.23%
.717		5	1.25	1.251 1.217	1.282 1.283	1.266	1.249	1.284	0.005534	0.98%	-0.72%
Sermination F	Rate Detail	-		1.611	1.203	1.249	1.217	1.284	0.01184	2.12%	0.59%
	Control Type	Rep 1	Rep 2	Dan 9	Don 4	D== 5					
	Negative Control		0.88	Rep 3	Rep 4	Rep 5					
.0239	gante contito	0.92		0.9	0.89	0.93					
0.0478		0.92	0.92	0.9	0.92	0.88					
).717			0.91	0.91	0.91	0.9					
		0.92	0.88	0.91	0.89	0.9					

Report Date:

02 Jun-14 12:11 (p 2 of 4)

Test Code:

LTS0514.176klp | 02-0630-0531

Macrocystis	Germination	and Germ	Tube Growth	1 Test
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Aquatic Bloassay & Consulting Labs, Inc.

Analysis ID: Analyzed:

13-5900-2870 02 Jun-14 12:10

Endpoint: Germination Rate

Parametric-Control vs Treatments

CETIS Version: Official Results: Yes

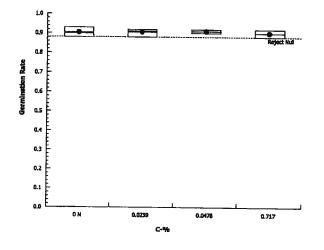
CETISv1.8.7

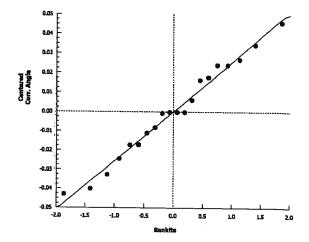
Angular	(Corrected)	Transformed	Detail
Angular	(Corrected)	Iransformed	Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1.284	1.217	1.249	1.233	1.303
0.0239		1.266	1.284	1.249	1.284	1.217
0.0478		1.284	1.266	1.266	1.266	1.249
0.717		1.284	1.217	1.266	1.233	1.249

Germination Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	92/100	88/100	90/100	89/100	93/100
0.0239		91/100	92/100	90/100	92/100	88/100
0.0478		92/100	91/100	91/100	91/100	90/100
0.717		92/100	88/100	91/100	89/100	90/100





Report Date:

02 Jun-14 12:11 (p 3 of 4)

Test Code:

LTS0514.176klp | 02-0630-0531

Macrocystis	Germination	and Gorm	Tuba	Growth	Toef
Macrocystis	Germination	anu Germ	lube	Growin	Iest

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:

21-4485-2762

Endpoint: Mean Length

CETIS Version:

CETISv1.8.7

Analyzed:

02 Jun-14 12:10

Analysis: Parametric-Control vs Treatments

Official Results: Yes

Sample ID:

05-7455-2604

Code:

LTS0514.176klp

Client:

LTS Environmental, Inc.

Sample Date: 13 May-14 06:00

Material:

Receive Date: 13 May-14 15:25

Source:

Project:

Platform Hermosa

Sample Water **Bioassay Report**

Sample Age: 34h (1.6 °C)

Station:

Produced Water Discharge (Platform Herm

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Untransformed	NA	C>T	NA	NA	3.42%	0.717	>0.717	NA	139.5

Dunnett Multiple Comparison Test

Control vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Negative Control	0.0239	-0.5706	2.227	0.546	8	0.9052	CDF	Non-Significant Effect
	0.0478	-0.4891	2.227	0.546	8	0.8891	CDF	Non-Significant Effect
	0.717	-0.7336	2.227	0.546	8	0.9319	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.08999981	0.02999994	3	0.1993	0.8953	Non-Significant Effect
Error	2.408002	0.1505001	16			
Total	2.498002		19			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(a:1%)	
Variances	Bartlett Equality of Variance	3.638	11.34	0.3033	Equal Variances	Ž.
Variances	Mod Levene Equality of Variance	1.487	5.953	0.2678	Equal Variances	10
Variances	Levene Equality of Variance	2.947	5.292	0.0645	Equal Variances	
Distribution	Shapiro-Wilk W Normality	0.9539	0.866	0.4299	Normal Distribution	2
Distribution	Kolmogorov-Smirnov D	0.1224	0.2235	0.6292	Normal Distribution	10
Distribution	D'Agostino Skewness	0.9519	2.576	0.3412	Normal Distribution	1
Distribution	D'Agostino Kurtosis	0.6633	2.576	0.5072	Normal Distribution	
Distribution	D'Agostino-Pearson K2 Omnibus	1.346	9.21	0.5102	Normal Distribution	
Distribution	Anderson-Darling A2 Normality	0.3262	3.878	0.5379	Normal Distribution	

Mean Length Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	5	16	15.35	16.65	15.8	15.5	16.7	0.2345	3.28%	0.0%
0.0239		5	16.14	15.91	16.37	16.1	15.9	16.4	0.08125	1.13%	-0.88%
0.0478		5	16.12	15.7	16.54	16	15.8	16.7	0.153	2.12%	-0.75%
0.717		5	16.18	15.66	16.7	16.3	15.7	16.7	0.1881	2.6%	-1.13%

Mean Length Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	Negative Control	15.6	15.8	15.5	16.7	16.4	
0.0239		16.4	16.1	16.2	16.1	15.9	
0.0478		15.8	16	16.1	16	16.7	
0.717		16.7	15.7	16.4	15.8	16.3	

Report Date:

02 Jun-14 12:11 (p 4 of 4)

Test Code:

LTS0514.176klp | 02-0630-0531

Macrocystis Germination and Germ Tube Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: Analyzed:

21-4485-2762 02 Jun-14 12:10

Analysis:

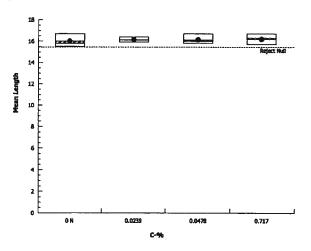
Endpoint: Mean Length

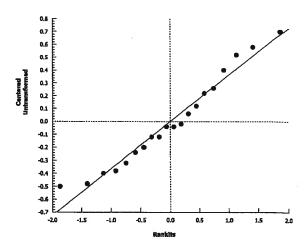
Parametric-Control vs Treatments

CETIS Version: Official Results:

CETISV1.8.7

Yes





Report Date:

02 Jun-14 12:11 (p 1 of 3)

Test Code:

LTS0514.176klp | 02-0630-0531

Macro	cystis Ge	ermination and	l Germ	Tub	e Grow	th Test					Aqua	tic Bl	oassay &	Consultin	g Labs, i	nc.
Analys Analyz		17-6488-8532 02 Jun-14 12:1	0		point: lysls:	Germination R Linear Interpola)			S Vers		CETISv [*] Yes	1.8.7		
Sample	e ID:	05-7455-2604		Code	e:	LTS0514.176k	lp	Ď			Client: LTS Environm			ental, Inc.		
Sample	e Date:	13 May-14 06:0	00	Mate	erial:	Sample Water				Proje			orm Hermo			
Receiv	e Date:		25	Sou	rce:	Bioassay Repo	ort			• 7				50 0		
Sample	e Age:	34h (1.6 °C)		Stati	ion:	Produced Water	er Discharge	(Platforn	n Herm							
Linear	Interpola	ation Options	• • • • • • • • • • • • • • • • • • • •													
X Tran	sform	Y Transform	1	Seed	i	Resamples	Exp 95%	CL M	ethod							
Linear		Linear		0	•	280	Yes		vo-Point	Interp	olation		-	~		
Point E		<u> </u>														
Level	%	95% LCL	95% l	JCL	TU	95% LCL	95% UCL									
EC5	>0.717	N/A	N/A		<139.5	5 NA	NA									
EC10	>0.717	N/A	N/A		<139.5	5 NA	NA									
EC15	>0.717	N/A	N/A		<139.5	5 NA	NA									
EC20	>0.717	N/A	N/A		<139.5	5 NA	NA									
EC25	>0.717	N/A	N/A		<139.5	5 NA	NA									
EC40	>0.717	N/A	N/A		<139.5	5 NA	NA									
EC50	>0.717	N/A	N/A		<139.5	NA NA	NA									
Germin	nation Ra	te Summary					Calcu	lated Va	riate(A/E	3)						
C-%	Co	ntro! Type	Count	t	Mean	Min	Max	Std Err	Std	Dev	CV%		%Effect	- A	В	
0	Ne	gative Control	5		0.904	0.88	0.93	0.00927	73 0.02	074	2.29%	6	0.0%	452	500	
0.0239			5		0.906	0.88	0.92	0.00748	33 0.01	673	1.85%	6	-0.22%	453	500	1
0.0478			5		0.91	0.9	0.92	0.00316	32 0.00	707	0.78%	6	-0.66%	455	500	
0.717			5		0.9	88.0	0.92	0.00707	71 0.01	581	1.76%	Ó	0.44%	450	500	
Germin	nation Ra	te Detail														
C-%	Co	ntroi Type	Rep 1		Rep 2	Rep 3	Rep 4	Rep 5								
0	Ne	gative Control	0.92		0.88	0.9	0.89	0.93	_				=			
0.0239			0.91		0.92	0.9	0.92	0.88								
0.0478			0.92		0.91	0.91	0.91	0.9							.00	
0.717			0.92		88.0	0.91	0.89	0.9								
Germin	nation Ra	te Binomials														
C-%	C	ontrol Type	Rep 1		Rep 2	Rep 3	Rep 4	Rep 5								
0	N	egative Control	92/100)	88/100	90/100	89/100	93/100								
0.0239			91/100)	92/100	90/100	92/100	88/100								
0.0478			92/100)	91/100	91/100	91/100	90/100								
0.717			92/100)	88/100	91/100	89/100	90/100								
					•											

Analyst:____QA:___

Report Date:

02 Jun-14 12:11 (p 2 of 3)

Test Code:

LTS0514.176kip | 02-0630-0531

Macrocystis Germination and Germ Tube Growth Test

Aquatic Bloassay & Consulting Labs, Inc.

Analysis ID: Analyzed:

17-6488-8532

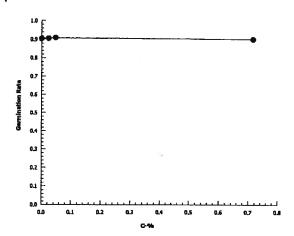
02 Jun-14 12:10

Endpoint: Germination Rate

Analysis: Linear Interpolation (ICPIN)

CETIS Version: Official Results: Yes

CETISv1.8.7



Report Date:

02 Jun-14 12:11 (p 3 of 3)

Test Code:

LTS0514.176klp | 02-0630-0531

Macrocyst	is Germ	ination a	nd Germ	Tube	Growth	Test
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Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: Analyzed:

13-7025-1225

02 Jun-14 12:10

Endpoint: Mean Length

Analysis: Linear Interpolation (ICPIN)

CETIS Version:

CETISv1.8.7

Official Results: Yes

Sample ID:

05-7455-2604

Code: Material:

LTS0514.176klp Sample Water

Client:

LTS Environmental, inc.

Sample Date: 13 May-14 06:00 Receive Date: 13 May-14 15:25

Source: **Bioassay Report** Project:

Platform Hermosa

Sample Age: 34h (1.6 °C)

Station:

Produced Water Discharge (Platform Herm

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1827240	280	Yes	Two-Point Interpolation
					

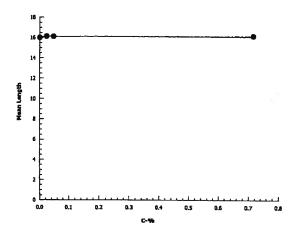
Point Estimates

Level %		95% LCL	95% UCL	TU	95% LCL	95% UCL		
IC5	>0.717	N/A	N/A	<139.5	NA	NA		
IC10	>0.717	N/A	N/A	<139.5	NA	NA		
IC15	>0.717	N/A	N/A	<139.5	NA	NA		
IC20	>0.717	N/A	N/A	<139.5	NA	NA		
IC25	>0.717	N/A	N/A	<139.5	NA	NA		
IC40	>0.717	N/A	N/A	<139.5	NA	NA		
IC50	>0.717	N/A	N/A	<139.5	NA	NA		

Mean Len	gth Summary	Calculated Variate								
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	
0	Negative Control	5	16	15.5	16.7	0.2345	0.5244	3.28%	0.0%	- 1
.0239		5	16.14	15.9	16.4	0.08125	0.1817	1.13%	-0.88%	
0.0478		5	16.12	15.8	16.7	0.153	0.3421	2.12%	-0.75%	
0.717		5	16.18	15.7	16.7	0.1881	0.4207	2.6%	-1.13%	

Mean Length Detail

_C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0 =	Negative Control	15.6	15.8	15.5	16.7	16.4	
0.0239		16.4	16.1	16.2	16.1	15.9	
0.0478		15.8	16	16.1	16	16.7	
0.717		16.7	15.7	16.4	15.8	16.3	



CETIS Measurement Report

Report Date:

02 Jun-14 12:11 (p 1 of 2)

Test Code:

LTS0514.176klp | 02-0630-0531

Macrocystis Germination and Germ Tube Growth Test								Aquatic Bioassay & Consulting Labs, Inc.					
Batch ID: Start Date: Ending Date: Duration:	09-6886-5444 14 May-14 16: 16 May-14 16: 48h		Test Type: Protocol: Species: Source:	Growth-Germination EPA/600/R-95/136 (1995) Macrocystis pyrifera Aquatic Bioassay Labs Collection					_aboratory Sea	water	150		
Sample ID:	05-7455-2604	05-7455-2604 Code:		LTS0514.176klp				Client: LTS Environmental, Inc.					
Sample Date:	13 May-14 06:00 Material:		Material:	Sample Water				Project:					
Receive Date:	13 May-14 15:2	25	Source:	Bioassay Repo	ort			•					
Sample Age:	34h (1.6 °C) Station:			Produced Wate	er Discharge	e (Platfor	m Herm						
Dissolved Oxy	ygen-mg/L	-											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std En	r Std Dev	CV%	QA Count		
0	Negative Contr	2	6.4	1.318	11.48	6	6.8	0.4	0.5657	8.84%	0		
0.0239		2	6.5	5.229	7.771	6.4	6.6	0.1	0.1414	2.18%	0		
0.0478		2	6.5	3.959	9.041	6.3	6.7	0.2	0.2828	4.35%	0		
0.717		2	6.5	2.688	10.31	6.2	6.8	0.3	0.4243	6.53%	0		
Overall	·	8	6.475			6	6.8				0 (0%)		
pH-Units													
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std En	r Std Dev	CV%	QA Count		
0	Negative Contr	2	7.9	7.884	7.916	7.9	7.9	0	0	0.0%	0		
0.0239		2	8.05	6.144	9.956	7.9	8.2	0.15	0.2121	2.64%	0		
0.0478		2	8.1	6.829	9.371	8	8.2	0.1	0.1414	1.75%	0		
0.717		2	8.3	8.275	8.325	8.3	8.3	0	0	0.0%	0 :		
Overall		8	8.088			7.9	8.3				0 (0%)		
Salinity-ppt							20						
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Er	r Std Dev	CV%	QA Count		
0	Negative Contr	2	34	34	34	34	34	0	0	0.0%	0		
0.0239	*	2	34	34	34	34	34	0	0	0.0%	0		
0.0478		2	34	34	34	34	34	0	0	0.0%	0		
0.717		2	34	34	34	34	34	0	0	0.0%	0		
Overall		8	34			34	34				0 (0%)		
Temperature-	C												
C-%	Control Type	Count		95% LCL	95% UCL	Min	Max	Std Er	r Std Dev	CV%	QA Count		
0	Negative Contr	2	14.9	13.63	16.17	14.8	15	0.1	0.1414	0.95%	0		
0.0239		2	14.9	13.63	16.17	14.8	15	0.1	0.1414	0.95%	0		
0.0478		2	14.9	13.63	16.17	14.8	15	0.1	0.1414	0.95%	0		
0.717		2	14.9	13.63	16.17	14.8	15	0.1	0.1414	0.95%	0		
Overall		8	14.9			14.8	15				0 (0%)		

CETIS Measurement Report

Report Date:

02 Jun-14 12:11 (p 2 of 2)

Test Code:

LTS0514.176klp | 02-0630-0531

				lest Code:	LIS0514.1/6klp 02-0630-0531
Macrocystis	Germination and	d Germ T	ube Growth Test	Aquatic	Bicassay & Consulting Labs, Inc.
Dissolved C	xygen-mg/L				
C-%	Control Type	1	2		
0	Negative Contr	6.8	6		
0.0239		6.6	6.4		
0.0478		6.7	6.3		
0.717		6.8	6.2		
pH-Units					
C-%	Control Type	1	2		
0	Negative Contr	7.9	7.9		
0.0239		7.9	8.2		
0.0478		8	8.2		
0.717		8.3	8.3		
Salinity-ppt					
C-%	Control Type	1	2		
0	Negative Contr	34	34		
0.0239		34	34		
0.0478		34	34		
0.717		34	34		
Temperature	-°C				
C-%	Control Type	1	2		
0	Negative Contr	15	14.8		1
0.0239		15	14.8		i
0.0478		15	14.8		.1 .6 00
0.717		15	14.8		98
0.717		15	14.8		

Analyst:_____QA:____



June 2, 2014

Freeport McMoRan O&G Attn: Ruth Juris 201 S. Broadway Orcutt, CA 93455

Dear Ms. Juris:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms EPA/600/R-95-136, 1995 "All acceptability criteria were met. This is a valid test." Results were as follows:

CLIENT:

Freeport McMoRan O&G

SAMPLE I.D.:

Produced Water Discharge (Platform Hermosa)

DATE RECEIVED:

13 May - 14

ABC LAB. NO.:

LTS0514.176

CHRONIC ABALONE LARVAL DEVELOPMENT BIOASSAY

IWC CONCENTRATION = 0.0478%

TST RESULT

PASS

Yours very truly,

Scott Johnson (Laboratory Director

CETIS Summary Report

Report Date:

29 May-14 14:15 (p 1 of 1)

Test Code:

LTS0514.176abs | 01-0895-0276

											-	. 0000 021	
Red Abalone	Larval Developm	ent Test							Aquati	c Bioassay &	Consulting	Labs, Inc	
Batch (D:	15-4002-4820	Test	Type:	Deve	lopment			Ana	lyst:				
Start Date:	14 May-14 11:01	Prot	ocol:	EPA/	600/R-95/	136 (1995)		Dilu	ent: L	aboratory Seav	water		
Ending Date:	16 May-14 12:00	Spe	cies:	Halio	tis rufesce	ns		Brin	ie: N	Not Applicable			
Duration:	49h	Sou	rce:	Cultu	red Abalor	ne		Age	:				
Sample ID:	04-1130-7541	Cod	e:	LTS0	514.176ab	os		Clie	nt: L	TS Environme	ntal, Inc.		
Sample Date:	13 May-14 06:00) Mat	erial:	Samp	ole Water			Proj	ject: F	Platform Hermo	sa		
Receive Date:	13 May-14 15:25	5 Sou	rce:	Bioas	say Repo	rt							
Sample Age:	29h (1.6 °C)	Stat	ion:	Produ	uced Wate	r Discharge	(Platform H	erm					
Comparison S	Summary								-			· ·	
Analysis ID	Endpoint		NOEL	Ļ	LOEL	TOEL	PMSD	TU	Metho	d			
04-6043-0420	Proportion Norm	al	0.071	7	>0.0717	NA	NA	1395	Steel M	/lany-One Rani	Sum Test		
Point Estimat	e Summary										,		
Analysis ID	Endpoint		Level	l .	%	95% LCL	95% UCL	ַ זע	Metho	d		<u>.</u>	
00-6834-3934	Proportion Norm	al	EC5		>0.0717	N/A	N/A	<1395	Linear	Interpolation (I	CPIN)		
			EC10) :	>0.0717	N/A	N/A	<1395					
			EC15		>0.0717	N/A	N/A	<1395					
			EC20		>0.0717	N/A	N/A	<1395					
			EC25		>0.0717	N/A	N/A	<1395					
			EC40		>0.0717	N/A	N/A	<1395					
			EC50)	>0.0717	N/A	N/A	<1395					
Test Acceptat	oility						į						
Analysis ID	Endpoint		Attrib			Test Stat	TAC Limi	its	Overla	•			
00-6834-3934	Proportion Norm			rol Res	•	1	0.8 - NL		Yes		cceptability		
04-6043-0420	Proportion Norm)al	Contr	rol Res	P	1	0.8 - NL		Yes	Passes A	cceptability	/ Criteria	
Proportion No	ormal Summary												
C-%	Control Type	Count	Mean		95% LCL			Max	Std E		CV%	%Effec	
0	Negative Control		1		1	1	1	1	0	0	0.0%	0.0%	
0.0239		5	1		1	1	1	1	0	0	0.0%	0.0%	
0.0478		5 5	1		1 1	1	1	1	0	0	0.0% 0.0%	0.0% 0.0%	
0.0717		<u> </u>	•		•		1	1			0.078	0.076	
Proportion No C-%	Control Type	Rep 1	Rep 2	2	Rep 3	Rep 4	Rep 5						
0	Negative Control		1		1	1	1		-				
0.0239		1	1		1	1	1						
0.0478		1	1		1	1	1			*			
0.0717		1	1		1	1	1						
	ormal Binomials	-			-	-							
-горогион (4) C-%	Control Type	Rep 1	Rep	2	Rep 3	Rep 4	Rep 5						
0	Negative Control		100/1		100/100	100/100	100/100						
0.0239		100/100	100/1		100/100	100/100	100/100						
0.0478		100/100	100/1		100/100	100/100	100/100						
0.0717		100/100	100/1		100/100	100/100	100/100						
9.01 11		.007 100	100/		100/100	1007100	1001100						

Report Date:

29 May-14 14:15 (p 1 of 2)

Test Code: LTS0514.176abs | 01-0895-0276

							i est	: Code:	LIS0514	.176abs (J1-0895-02	
Red Abalone	e Larval Developn	nent Test	t					Aquatic	Bioassay &	Consultin	g Labs, in	
Analysis ID:	04-6043-0420	E	ndpoint: P	roportion Non	mal		CET	'i\$ Version	: CETISv1	.8.7		
Analyzed:	29 May-14 14:1		•	lonparametric		Treatments		cial Results		.0.7		
Sample ID:	04-1130-7541	C	ode: L	TS0514.176a	bs		Client: LTS Environmental, Inc.					
Sample Date	e: 13 May-14 06:0	0 M	laterial: S	ample Water			Proj		tform Hermo	-		
Receive Date	e: 13 May-14 15:2	5 S (ource: B	ioassay Repo	rt		•					
Sample Age	: 29h (1.6 °C)	St	tation: P	roduced Wate	er Discharge	e (Platform I	Herm					
Data Transfo	orm	Zeta	Alt Hyp	Trials	Seed			NOEL	LOEL	TOEL	TU	
Angular (Con	rected)	NA	C>T	NA	NA			0.0717	>0.0717	NA	1395	
Steel Many-C	One Rank Sum Te	st										
Control	vs C-%		Test Sta		······	F P-Value	P-Type	Decision	(a:5%)			
Negative Cor			27.5	17	1 8	0.7500	Asymp	_	ificant Effect			
	0.0478		27.5	17	1 8	0.7500	Asymp	Non-Sign	ificant Effect	t		
	0.0717		27.5	17	1 8	0.7500	Asymp	Non-Sign	ificant Effect	t	_	
ANOVA Tabl	e								-			
Source	Sum Squa	res	Mean S	quare	DF	F Stat	P-Value	Decision				
Between	0		0		3	65540	<0.0001	Significar	nt Effect			
Error	0		0		16							
Total	0				19	-		-				
-	Iormal Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL		Min	Max	Std Err	CV%	%Effec	
)	Negative Control		1	1	1	1	1	1	0	0.0%	0.0%	
0.0239		5	1	1	1	1	1	1	0	0.0%	0.0%	
0.0478 0.0717		5 5	1	1	1	1	1	1	0	0.0%	0.0%	
			<u> </u>	1	1	1	1		0	0.0%	0.0%	
Angular (Col C-%	rrected) Transforn Control Type	nea sum Count	•	059/ 1 0/	05% 1101						E-1	
0	Negative Contr	5	Mean 4 524	95% LCL	95% UCL		Min	Max	Std Err	CV%	%Effec	
0.023 9	Negative Contr	5	1.521 1.521	1.521	1.521	1.521	1.521	1.521	0	0.0%	0.0%	
0.023 9 0.0478		5	1.521	1.521 1.521	1.521	1.521	1.521	1.521	0	0.0%	0.0%	
0.0478 0.0717		5	1.521	1.521	1.521 1.521	1.521 1.521	1.521 1.521	1.521 1.521	0 0	0.0%	0.0%	
	lormal Detail		1.021	1.021	1.021	1.521	1.521	1.521		0.0%	0.0%	
Proportion N C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Pon 5						
)	Negative Control		1	1	1	Rep 5						
0.0239	<u> </u>	1	1	1	1	1						
0.0478		1	1	1	1	1						
0.0717		1	1	1	1	1						
Angular (Cor	rrected) Transforn	ned Deta	III							-		
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5						
)	Negative Control	1.521	1.521	1.521	1.521	1.521						
0.0239		1.521	1.521	1.521	1.521	1.521						
0.0478		1.521	1.521	1.521	1.521	1.521						
0.0717		1.521	1.521	1.521	1.521	1.521						
Proportion N	Iormal Binomials											
•			D 0	D 2	Don 4	Rep 5						
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	- top o						
C-%	Control Type Negative Control				100/100	100/100						
C-% 0 0.0239			100/100	100/100 100/100								
C-% 0 0.0239 0.0478		100/100	100/100	100/100 100/100	100/100	100/100	,,					

0.2

0.0239

0.0478

0.0717

Report Date:

29 May-14 14:15 (p 2 of 2)

Test Code

IS0514 176abs | 01-0895-0276

						Test Code:	LTS0514.176abs 01-0895-0276		
Red Abalone	Larvai De	velopment	Test			Aquatic Bioassay & Consulting Labs			
Analysis ID: Analyzed:	04-6043 29 May-	-0420 14 14:14	Endpoint: Analysis:		al control vs Treatments	CETIS Version: Official Results:	CETISv1.8.7 Yes		
Graphics									
0.9	•	•	•	•	1.05+00	•			
0.8					7.5E-01				
Termony up 0.7					Zentared orr. Anglo				
Proposition 0.5					5.0E-01				

0.0E+00 L--2.0

Analyst: QA:

Report Date:

29 May-14 14:15 (p 1 of 2)

Test Code:

LTS0514.176abs | 01-0895-0276

								lest Code	:	LI S0514	1.176abs C	JT-0895-0;
alone L	arval Develop	ment Te	st					Aqu	atic Bi	oassay &	Consultin	g Labs, Ir
s ID:	00-6834-3934	1	Endpoint:	Proportion No	mai			CETIS Ver	sion.	CETISv1	187	
ed:	29 May-14 14:	14	Analysis:	•		۱)						
iD:	04-1130-7541	(Code:	LTS0514.176a	abs			Cilent:	LTS	Environme	entai, Inc.	
			Material:	Sample Water	•			Project:	Platfo	orm Hermo	osa	
e Date:	13 May-14 15:2	25 \$	Source:	Bioassay Repo	ort			•				
Age:	29h (1.6 °C)		Station:	Produced Wat	er Discharge	e (Platfo	rm Herm					
interpol	ation Options					<u></u>						
form	Y Transform	1 5	Seed	Resamples	Exp 95%	CL I	Method					
	Linear	()	280	Yes	7	Two-Point I	nterpolation	1			
stimate	5								-			
%	95% LCL	95% U	CL TU	95% LCL	95% UCL	_						
		N/A			NA							
		N/A			NA							
					NA							
					NA							
					NA							
			<139	5 NA	NA							
>0.071	7 N/A	N/A	<139 	5 NA	NA							
ion Nor	mal Summary				Calc	ulated V	ariate(A/B)					
		Count	Mear	<u>Min</u>	Max	Std E	rr Std [Dev CV9	6	%Effect	- A	В
Ne	gative Control	5	1	1	1	0	0	0.09	6	0.0%	500	500
		5	1	1	1	0	0	0.09	6	0.0%	500	500
		5	1	1	1	0	0	0.09	6	0.0%	500	500
		5	1	1	1 **	0	0	0.09	6	0.0%	500	500
ion Non	mai Detail					***						
		Rep 1	<u>.</u>	2 Rep 3	Rep 4	Rep 5	<u> </u>					
Ne	gative Control	1	1	1	1	1						
		1	1	1	1	1						
		1	1	1	1	1						
		1	1	1	1	1						
ion Nor	mai Binomials											
		Rep 1		2 Rep 3	Rep 4	Rep 5	<u> </u>					
N	legative Control	100/10			100/100	100/10	00					
		100/10	0 100/1	00 100/100	100/100	100/10	00					
	s ID: ed: Date: Date: Date: Age: Interpol form stimate % >0.071 >0.071 >0.071 >0.071 >0.071 >0.071 on Nor Co Ne	s ID: 00-6834-3934 ed: 29 May-14 14: Date: 13 May-14 06:0 Date: 13 May-14 15:2 Age: 29h (1.6 °C) Interpolation Options Form Y Transform Linear Stimates % 95% LCL >0.0717 N/A >0.0717 N/A >0.0717 N/A >0.0717 N/A >0.0717 N/A >0.0717 N/A >0.0717 N/A ion Normal Summary Control Type Negative Control Ion Normal Detail Control Type Negative Control	s ID: 00-6834-3934 ed: 29 May-14 14:14 ed: 10D: 04-1130-7541 ed: 13 May-14 06:00 ed: 13 May-14 15:25 ed: 29h (1.6 °C) enterpolation Options eform Y Transform Linear Stimates % 95% LCL 95% U >0.0717 N/A N/A >0.0717 N/A N/A >0.0717 N/A N/A >0.0717 N/A N/A >0.0717 N/A N/A >0.0717 N/A N/A >0.0717 N/A N/A >0.0717 N/A N/A >0.0717 N/A N/A N/A >0.0717 N/A N/A N/A >0.0717 N/A N/A N/A Ondrid Summary Control Type Count Negative Control 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Section	s ID: 00-6834-3934	a ID: 00-6834-3934	S ID:	a ID: 00-8834-3934	alone Larval Development Test al Di: 00-8834-3934 Endpoint: Proportion Normal od: 29 May-14 14:14 Analysis: Linear Interpolation (ICPIN) Official Result of 29 May-14 14:14 Analysis: Linear Interpolation (ICPIN) Official Result of 29 May-14 06:00 Material: Sample Water Project: Project: Project: 13 May-14 06:00 Material: Sample Water Produced Water Discharge (Platform Herm) al Date: 13 May-14 15:25 Source: Bioassay Report Produced Water Discharge (Platform Herm) al Date: 13 May-14 15:25 Source: Bioassay Report Produced Water Discharge (Platform Herm) al Date: 13 May-14 15:25 Source: Bioassay Report Produced Water Discharge (Platform Herm) al Date: 13 May-14 15:25 Source: Bioassay Report Produced Water Discharge (Platform Herm) al Date: 13 May-14 15:25 Source: Bioassay Report Produced Water Discharge (Platform Herm) al Date: 13 May-14 15:25 Source: Bioassay Report Produced Water Discharge (Platform Herm) al Date: 13 May-14 15:25 Source: Bioassay Report Produced Water Discharge (Platform Herm) al Date: 13 May-14 15:25 Source: Bioassay Report Produced Water Discharge (Platform Herm) al Date: 13 May-14 15:25 Source: Bioassay Report Produced Water Discharge (Platform Herm) al Date: 13 May-14 15:25 Source: Bioassay Report Produced Water Discharge (Platform Herm) al Date: 13 May-14 16:02 Platform Herm Produced Water Discharge (Platform Herm) al Date: 13 May-14 16:02 Platform Herm Produced Water Discharge (Platform Herm Produced Water Discharge (Platform Herm Produced Water Discharge (Platform Herm Produced Water Discharge (Platform Herm Produced Water Discharge (Platform Herm Produced Water Discharge (Platform Herm Produced Water Discharge (Platform Herm Produced Water Discharge (Platform Herm Produced Water Discharge (Platform Herm Produced Water Discharge (Platform Herm Produced Water Discharge (Platform Herm Produced Water Discharge (Platform Herm Produced Water Discharge (Platform Herm Pr	alone Larval Development Test Sal Discolor Control Type Rep 1 Rep 2 Rep 3 Rep 4 Rep 5 Rep 4 Rep 5 Rep 1 Rep 2 Rep 3 Rep 4 Rep 5 Rep 6 Rep 1 Rep 2 Rep 3 Rep 4 Rep 5 Rep 5 Rep 6 Rep 6 Rep 6 Rep 6 Rep 6 Rep 6 Rep 6 Rep 7 Rep 1 Rep 2 Rep 3 Rep 4 Rep 5 Rep 6 Rep 6 Rep 6 Rep 6 Rep 6 Rep 6 Rep 6 Rep 6 Rep 6 Rep 6 Rep 6 Rep 6 Rep 6 Rep 6 Rep 6 Rep 6 Rep 6 Rep 6 Rep 6 Rep 7 Rep	al Development Test	Second Carval Development Test Second

Analyst: QA:

0.0478

0.0717

100/100 100/100

100/100 100/100

100/100 100/100

100/100 100/100

100/100

100/100

Report Date:

29 May-14 14:15 (p 2 of 2)

Test Code:

LTS0514.176abs | 01-0895-0276

Red Abaione Larvai Development Test

Aquatic Bioassay & Consulting Labs, Inc.

CETISv1.8.7

Analysis ID: Analyzed:

00-6834-3934 29 May-14 14:14

Analysia

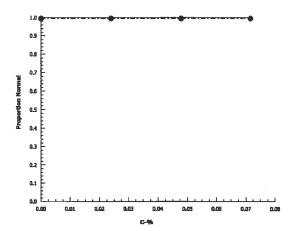
Endpoint: Proportion Normal

Analysis: Linear Interpolation (ICPIN)

CETIS Version:

Official Results: Yes

Graphics



CETIS Measurement Report

Report Date:

29 May-14 14:15 (p 1 of 2)

Test Code:

LTS0514.176abs | 01-0895-0276

										lest Code:	L15051	4.1/6abs 0	J1-0895-0276	
Red Abaione	Larval Develop	ment T	est							Aqua	etic Bioassay &			
Batch ID:	15-4002-4820		Tes	t Type:	Deve	elopment	********			Analyst:				
Start Date:	14 May-14 11:	01	Pro	tocol:	EPA	/600/R-95	5/136 (1995)			Diluent:	Laboratory Se	awater		
Ending Date:	16 May-14 12:	00	Spe	cies:	Halio	tis rufesc	ens			Brine: Not Applicable				
Duration:	49h		Sou	rce:	Cultu	red Abal	one			Age:				
Sample ID:	04-1130-7541		Cod	le:	LTSC)514.176	abs			Client:	LTS Environm	ental. Inc.		
Sample Date:	13 May-14 06:	00	Mat	erial:	Sam	ple Wate	r			Project:	Platform Herm	•		
Receive Date:	13 May-14 15:	25	Sọu	rce:	Bioas	ssay Rep	ort			•				
Sample Age:	29h (1.6 °C)		Stat	ion:	Prod	uced Wa	ter Discharg	e (Platfor	m Herm					
Parameter Ac	ceptability Crite	eria												
Parameter			Min		Max	Ac	ceptability	Limits	Overla	ap Decisi	on			
Salinity-ppt			34		34	32	- 36		Yes	Result	s Within Limits			
Temperature-°	С		14		14.2	14	- 16		Yes	Result	s Within Limits			
Dissolved Ox	/gen-mg/L													
C-%	Control Type	Count	t	Mean	9	5% LCL	95% UCL	Min	Max	Std E	rr Std Dev	CV%	QA Count	
0	Negative Contr	2		5.9	-	5.536	17.34	5	6.8	0.9	1.273	21.57%	0	
0.0239		2		5.65	-	8.962	20.26	4.5	6.8	1.15	1.626	28.78%	0	
0.0478		2		5.9	-	9.347	21.15	4.7	7.1	1.2	1.697	28.76%	0	
0.0717		2		6.3		3.865	16.46	5.5	7.1	0.8	1.131	17.96%	0	
Overail		8		5.938				4.5	7.1				0 (0%)	
pH-Units														
C-%	Control Type	Count	t	Mean	9	5% LCL	95% UCL	Min	Max	Std E	rr Std Dev	CV%	QA Count	
0	Negative Contr	2		7.5	7	'.5	7.5	7.5	7.5	0	0	0.0%	0	
0.0239		2		7.5	7	7.5	7.5	7.5	7.5	0	0	0.0%	0	
0.0478		2		7.5	7	7.5	7.5	7.5	7.5	0	0	0.0%	0	
0.0717		2		7.55	6	.915	8.185	7.5	7.6	0.05	0.07071	0.94%	0	
Overall		8		7.513				7.5	7.6				0 (0%)	
Salinity-ppt										•	_			
	Control Type	Count	t	Mean	9	5% LCL	95% UCL	Min	Max	Std E	rr Std Dev	CV%	QA Count	
0	Negative Contr	2		34	3	14	34	34	34	0	0	0.0%	0	
0.0239		2		34	3	4	34	34	34	0	0	0.0%	0	
0.0478		2		34	3	4	34	34	34	0	0	0.0%	0	
0.0717		2		34	3	14	34	34	34	0	0	0.0%	0	
Overali		8		34				34	34	·			0 (0%)	
Temperature-	C													
	Control Type	Count	t	Mean		5% LCL	95% UCL.	Min	Max	Std E	rr Std Dev	CV%	QA Count	
	Negative Contr			14.1		2.83	15.37	14	14.2	0.1	0.1414	1.0%	0	
0.0239		2		14.1		2.83	15.37	14	14.2	0.1	0.1414	1.0%	0	
0.0478		2		14.1		2.83	15.37	14	14.2	0.1	0.1414	1.0%	0	
0.0717		2		14.1	1	2.83	15.37	14	14.2	0.1	0.1414	1.0%	0	
Overall		8		14.1				14	14.2				0 (0%)	

Analyst:_____QA:

CETIS Measurement Report

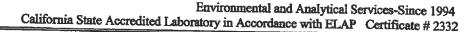
Report Date: 29 May-14 14:15 (p 2 of 2)
Test Code: LTS0514 175che | 01 0805 0276

					Test Code:	LTS0514.176abs 01-0895-0276
Red Abalo	one Larval Develop	nent Tes	t		Aquatic	Bioassay & Consulting Labs, Inc.
Dissolved	Oxygen-mg/L					
C-%	Control Type	1	2			
0	Negative Contr	6.8	5			
0.0239		6.8	4.5			
0.0478		7.1	4.7			
0.0717		7.1	5.5			
pH-Units						
C-%	Control Type	1	2			
0	Negative Contr	7.5	7.5		=	
0.0239		7.5	7.5			
0.0478		7.5	7.5			
0.0717		7.5	7.6			
Salinity-p	ot					
C-%	Control Type	1	2			
0	Negative Contr	34	34			
0.0239		34	34			
0.0478		34	34			
0.0717		34	34			
Temperatu	ire-°C					
C-%	Control Type	1	2			
0	Negative Contr	14	14.2			
0.0239		14	14.2	a B		
0.0478		14	14.2	2		
0.0717		14	14.2			

Sheet4

LTS E	nvironme	ntal, Inc.	Report	to:	Freeport McMoRa	an O&G	Bill to: Freeport McMoRan O&G
Ver	dirondack ntura, CA § 805-644-45	03003 60	201 S E Orcutt,		Ruth Juris 201 S Broadway Orcutt, Ca 93455		Freeport McMoRan O&G 700 Milam, Suite 3100 Houston, Tx 77002
FACILITY: COLLECTOR PROJECT/C RESULTS RI RESULTS B	HARGE # EQUIRED: Y: PHONE:	Platform H LTS / Quarterly N normal		pecies Toxi			SUBMITTED TO: ABC Lab REPORT TO: George Folks PHONE: FAX: COPIES TO: Steve Lawry @ LTS Platform Supervisor (@ Orcutt) PHONE: 644-456
SAMPLE NO.	SAMPLE II	D/LOCATION	GRAB/ COMP.	VOLUME	DATE/TIME	PRESERV.	
1		ed Water harge	Comp	1 gallon	SID/13 14	-	Red Abalone - Larval development Giant Kelp - Germination & germ tube length Top Smelt - Larval survival & growth
							IWC = .6478 1.5x IWC = .6717 0.5 x IWC = .0239
							Composite times (3-hour intervals):
							900 · 1200 · 1500 · 1800 · 2100 · 0000 ·
Comments:							
Relinquished b	V: 71	\bigcirc	7				
Received by:		N/			1525 573 my	Relinquished by:	by: Date: Time:
Refinquished by:	y:			Date: Time:		Relinquished be Received by:	by: Date:Time:

72709=1,6°C CHOPHE = <0.) Annodo = >10





Prepared for: Freeport McMoRan O&G

C/O: LTS Environmental, Inc.

704 Adirondack Avenue Ventura, CA 93003 Attn: Steve Lawry

Report Date: May 27, 2014
Laboratory Number: 141261

Project Name: PF Hermosa, Annual NPDES Produced Water Monitoring

On May 13, 2014, Capco Analytical Services, Inc.(CAS), received three(3) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

SAMPLE DESCRIPTION CAS LAB	MOLIDEIT ED	_
NPDES PROD.WATER141261-NPDES PROD.WATER141261-NPDES PROD.WATER141261-	-02	

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D. Director - Analytical Operations

cc: PF Hermosa Supervisor @-Orcutt
Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 9 pages excluding the cover letter and the Chain of Custody.

This report shall not be reproduced except in full without the written approval of CAS. The test results reported represent only the item being tested and may not represent the entire material from which the sample was taken.



CERTIFICATE OF ANALYSIS

Client: Freeport McMoRan CAS LAB NO: 141261 Analyst: ABE	(PF	Hermosa)	Date Sampled: Date Received: Date Analyzed: Sample Matrix:	05/13/14 05/14/14
	RI	TOTAL COPPER PA Method 200.7		

CAS Lab #	Sample ID	RESULTS (µg/L)	Dilution Factor	PQL (µg/L)	MDL (µg/L)
141261-01	NPDES Prod. Water				
141201-01	Mento Flod. Marer	ND	1	20	4

QUALITY CONTROL SECTION

141261-MB Method Blank ND 1 20 4



WECK LABORATORIES, INC.

Analytical Laboratory Service - Since 1964

Date Received:

05/14/14 09:45

Date Reported:

05/21/14 10:50

Capco Analytical Services 1536 Eastman Avenue Ventura CA, 93003

Sampled: 05/12/14 14:00

4E14048-01 141261-02

Sampled By: Client

Matrix: Water

Volatile Organics by EPA Method 624

Method: EPA 624	Batch: W4E0843	Prepare	d: 05/15/14 1:	3:59			Analyst: Marfel Tipon
Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Benzene	720		50	ug/l	50	05/17/14 06:31	
Surr. 1,2-Dichloroethane-d4	· 97 %	Conc:48.5	82-125	%	-		
Surr. 4-Bromofluorobertzene	107 %	Conc:53.3	88-108	%			
Sur: Tokiene-d8	101 %	Conc:50.6	92-112	%			



Analytical Laboratory Service - Since 1964

Capco Analytical Services 1536 Eastman Avenue Ventura CA, 93003

Date Received:

05/14/14 08:30

Date Reported:

05/21/14 12:11

4E14004-01 141261-03

Sampled: 05/12/14 14:00

Sampled By: Client

Matrix: Water

Acid and Base/Neutral Extractables by EPA Method 625

Method: EPA 625	Batch: W4E0877	Prepare	:d: 05/16/14 1	0:01	Analyst: Armando Bielma		
Analyte	Result	MDL	MRL	Units	Di	Analyzed	Qualifier
Benzo (a) anthracene	ND	0.95	5.0	ug/l	5	05/19/14 21:41	M-04
Benzo (a) pyrene	ND	0.65	5.0	ug/l	5	05/19/14 21:41	M-04
Benzo (b) fluoranthene	ND	0.70	5.0	ug/l	5	05/19/14 21:41	M-04
Benzo (k) fluoranthene	ND	1.1	5.0	ug/l	5	05/19/14 21:41	M-04
Chrysene	ND	0.95	5.0	ug/l	5	05/19/14 21:41	M-04
Dibenzo (a,h) anthracene	ND	0.40	10	ug/i	5	05/19/14 21:41	M-04
Surr: 2,4,6-Tribromophenol	66 %	Conc:62.9	25-102	%			M-04
Sum: 2-Fluorobiphenyl	86 %	Conc:41.1	22-107	%			M-04
Sun: 2-Fluorophenol	48 %	Conc:46.1	3-74	%			M-04
Surr: Nitrobenzene-d5	77 %	Conc:36.6	27-111	%			M-04
Sun: Phenoi-d5	33 %	Conc:31.4	0.1-53	%			
Surr. Terphenyl-d14	92 %	Conc:43.6	28-113	%			M-04 M-04



QUALITY CONTROL SECTION



Analytical Laboratory Service - Since 1964

Capco Analytical Services 1536 Eastman Avenue Ventura CA, 93003

Date Received: Date Reported: 05/14/14 08:30 05/21/14 12:11

Acid and Base/Neutral Extractables by EPA Method 525 - Quality Control

Batch W4E0877 - EPA 625

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Dat
Blank (W4E0877-BLK1)					Analyzed: 0		19:41	dies (Eldes		LINE	Qualifiers
Benzo (a) anthracene	ND	0.19	1.0	ug/l							
Benzo (a) pyrene	ND	0.13	1.0	ug/l							
Benzo (b) fluoranthene	ND	0.14	1.0	ug/i							
Benzo (k) fluoranthene	ND	0.22	1.0	ug/i							
Chrysene	ND	0.19	1.0	ug/i							
Dibenzo (a,h) anthracene	ND	0.080	2.0	ug/i							
Surr: 2,4,6-Tribromophenol	68.9			ug/l	100		69	25-102			
Surr: 2-Fluorobiphenyl	35.6			ug/l	50.0		71	25-102 22-107			
Surr: 2-Fluorophenol	47.0			ug/l	100		47	3-74			
Suit: Nitrobenzene-d5 Suit: Phenol-d5	38.2			ug/l	50.0		76	27-111			
Surr: Terphenyl-d14	26.6			ug/l	100		27	0.1-53			
LCS (W4E0877-BS1)	52.3			ug/I	50.0		105	28-113			
1,2,4-Trichlorobenzene	28.7	0.55	4.0		Analyzed: 0	5/19/14 2	0:10				
1,2-Dichlorobenzene	26.7		1.0	ug/l	50.0		57	44-142			
1,3-Dichlorobenzene		0.57	1.0	ug/l	50.0		53	32-129			
1,4-Dichlorobenzene	25.3	0.53	1.0	ug/i	50.0		51	0.1-172			
2,4,6-Trichlorophenol	27.4	0.55	1.0	ug/i	50.0		55	20-124			
2,4-Dichlorophenol	25.7	0.22	1.0	ug/l	50.0	3	51	37-144			
2,4-Dimethylphenol	34.7	0.26	1.0	ug/I	50.0		69	39-135			
2,4-Dinitrophenol	27.8	0.30	1.0	ug/t	50.0		56	32-119		8	
2,4-Dinitrotoluene	18.9	1.6	10	ug/l	50.0		38	0.1-191			
2,6-Dinitrotoluene	41.3	0.18	1.0	ug/l	50.0		83	39-139			
•	43,3	0.27	1.0	ug/ī	50.0		87	50-158			
2-Chloronaphthalene	35.1	0.45	1.0	ug/l	50.0		70	60-118			
2-Chlorophenol	27.8	0.28	1.0	ug/I	50.0		56	23-134			
2-Methyl-4,6-dinitrophenol	27.4	1.7	5.0	ug/f	50.0		55	0.1-181			
2-Nitrophenol	30.5	0.26	1.0	ug/l	50.0		61	29-182			
3,3'-Dichlorobenzidine	81.2	1.2	5.0	ug/l	50.0	82	162	0.1-262			
4,6-Dinitro-2-methylphenol	27.A	1.7	5.0	ug/i	50.0		55	0.1-181			
4-Bromopherryl phenryl ether	36.6	0.36	1.0	ug/l	50.0		73	53-127			
4-Chloro-3-methylphenol	38.9	0.23	1.0	ug/l	50.0		78	22-147			
4-Chlorophenyl phenyl ether	38.9	0.41	1.0	ug/i	50.0		78	25-158			
4-Nitrophenol	13.3	0.45	5.0	ug/l	50.0		27	0.1-132		200	
Acenaphthene	37.4	0.38	1.0	ug/l	50.0		75	47-145			
Acenaphthylene	40.8	0.40	1.0	ug/i	50.0		82	33-145			
Anthracene	41.2	0.34	1.0	ug/l	50:0		82	27-133			
Benzo (a) anthracene	50.1	0.19	1.0	ug/l	50.0		100	33-143			
Benzo (a) pyrene	41.6	0.13	1.0	ug/i	50.0		83	33-143 17-163			
Benzo (b) fluoranthene		0.14	1.0	ug/l	50.0		92				
Benzo (g,h,i) perylene		0.10	2.0	ug/l	50.0		92 49	24-159 0.1-219			

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Analytical Laboratory Service - Since 1964

Capco Analytical Services 1536 Eastman Avenue Ventura CA, 93003

Date Received:

05/14/14 08:30

Date Reported:

05/21/14 12:11

Acid and Base/Neutral Extractables by EPA Method 625 - Quality Control

Batch W4E0877 - EPA 625

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result %REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS (W4E0877-BS1)					Analyzed: (05/19/14 20:10				- demander o
Benzo (k) fluoranthene	44.6	0.22	1.0	ug/i	50.0	89	11-162			
Benzyl butyl phthalate	48.5	0.18	1.0	ug/l	50.0	97	0.1-152			
Bis(2-chloroethoxy)methane	34.7	0.25	1.0	ug/l	50.0	69	33-184			
Bis(2-chloroethyl)ether	29.0	. 0.27	1.0	ug/l	50.0	58	12-158			
Bis(2-chloroisopropyl)ether	26,9	0.38	1.0	ug/i	50.0	54	36-166			
Bis(2-ethylhexyl)phthalate	52.0	2.3	5.0	ug/l	50.0	104	8-158			
Butyl benzyl phthalate	48.5	0.18	1.0	ug/l	50.0	97	0.1-152			
Chrysene	42.1	0.19	1.0	ug/l	50.0	84	17-168			
Dibenzo (a,h) anthracene	26.7	0.080	2.0	ug/l	50.0	53	0.1-227			
Diethyl phthalate	45.0	0.15	1.0	uġ/l	50.0	90	0.1-227			
Dimethyl phthalate	50.2	0.18	1.0	ug/l	50.0	, 100	0.1-112			
Di-n-butyl phthalate	44.9	0.24	1.0	ug/i	50.0	90				
Di-n-octyl phthalate	37.7	0.19	1.0	ug/l	50.0		1-118		63	(4)
Fluoranthene	50.1	0.22	1.0	ug/l	50.0	. 75	4-146			
Fluorene	41.5	0.35	1.0			: 100	26-137			
Hexachlorobenzene	46.0	0.49	1.0	ug/i	50.0	83	59-121			
Hexachlorobutadiene	29.1	0.47	1.0	ug/l	50.0	92	0.1-152			
Hexachlorocyclopentadiene	17.5	1.5		ug/l	50.0	58	24-116			
Hexachloroethane	26.9	0.52	5.0	ug/l	50.0	35	0.1-81			
Indeno (1,2,3-cd) pyrene	23.9	0.52	1.0	ug/l	50.0	54	40-113			
Isophorone	35.4	0.12	2.0	ug/l	50,0	48	0.1-171			
Naphthalene	31.5	0.49	1.0	ug/l	50.0	71	21-196			
Nitrobenzene	32.5		1.0	ug/l	50.0	63	21-133			
N-Nitrosodimethylamine	19.2	0.36	1.0	ug/l	50.0	65	35-180			
N-Nitrosodi-n-propylamine	·	.0.14	1.0	ug/i	50.0	38	15-59	91		
N-Nitrosodiphenylamine		0.26	1.0	ug/i	50.0	68	0.1-230			
Pentachlorophenol	35.5	0.19	1.0	ugA	50.0	71	42-90			
Phenanthrene	29.0	0.19	1.0	ug/l	50.0	58	14-176		74	*
Phenoi	42.9	0.32	1.0	ug/I	50.0	86	54-120		35	12
i e	11.0	0.16	1.0	ug/f	50.0	22	5-112			
Pyrene	48.0	0.25	1.0	ug/l	50.0	96	52-115			120
Surr: 2,4,6-Tribromophenol Surr: 2-Fluorobiphenyl	77.0	\$9		ug/l	100	77	25-102			
Surr: 2-Fluorophenol	38.3 37.2			ug/l	50.0	77	22-107			
Surr: Nitrobenzene-d5	37.2 33.0			ug/l	100	37	3-74			
Surr: Phenol-d5	22.8			ug/l ug/l	50.0 100	66	27-111			
Surr: Terphenyl-d14	49.1			ug/i ug/i	100 50.0	23 98	0.1-53 28-113			
LCS Dup (W4E0877-BSD1)						5/19/14 20:40	20-113			
1,2,4-Trichlorobenzene	38.5	0.55	1.0	ug/!	50.0	77	44-142	29	30	
1,2-Dichlorobenzene	34,4	0.57	1.0	ug/l	50.0	69	32-129	25	30	
1,3-Dichlorobenzene	33.3	0.53	1.0	ug/l	50.0	67	0.1-172	27	30	

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Capco Analytical Services 1536 Eastman Avenue Ventura CA, 93003 Analytical Laboratory Service - Since 1964

Date Received: Date Reported: 05/14/14 08:30 05/21/14 12:11

Acid and Base/Neutral Extractables by EPA Method 625 - Quality Control

Batch W4E0877 - EPA 625

Analyte		Result	MDL	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS Dup (W4E0877-BSD1)					1	Analyzed: (05/19/14	20:40				
1,4-Dichtorobenzene		37.8	0.55	1.0	ug/l	50.0		76	20-124	32	30	Q-12
2,4,6-Trichlorophenol		31.5	0.22	1.0	ug/l	50.0		63	37-144	20	30	Q-12
2,4-Dichlorophenol		40.4	0.26	1.0	ug/l	50.0		81	39-135	15	30	
2,4-Dimethylphenol		27.4	0.30	1.0	ug/l	50.0		55	32-119	1	30	
2,4-Dinitrophenol		29,3	1.6	10	ug/l	50.0		59	0.1-191	43	30	Q-12
2,4-Dinitrotoluene		42.3	0.18	1.0	ug/I	50.0		85	39-139	2	30	VC* 12,
2,6-Dinitrotatuene		45.7	0.27	1.0	ug/l	50.0		91	50-158	5	30	
2-Chloronaphthalene		42.4	0.45	1.0	ug/l	50.0		85	60-118	19	30	
2-Chlorophenol		32.9	0.28	1.0	ug/l	50.0		66	23-134	17	30	
2-Methyl-4,6-dinitrophenol		38.7	1.7	5.0	ug/l	50.0		77	0.1-181	34	30	Q-12
2-Nitrophenol		36.5	0.26	1.0	ug/l	50.0		73	29-182	18	30	W-12
3,3'-Dichlorobenzidine	8	87.0	1.2	5.0	ug/l	50.0		174	0.1-262	7	30	
4,6-Dinitro-2-methylphenol		38.7	1.7	5.0	ug/l	50.0		77	0.1-181	34	30	Q-12
4-Bromophenyl phenyl ether		38.2	0.36	1.0	ug/l	50.0		76	53-127	4	30	Q*12
4-Chloro-3-methylphenol	100	41.4	0.23	1.0	ug/i	50.0		83	22-147	· 6	30	
4-Chlorophenyl phenyl ether		42.7	0.41	1.0	ug/l	50.0	80	85	25-158	9	30	
4-Nitrophenol		17.9	0.45	5.0	ug/l	50.0		36	0.1-132	. 29	30	
Acenaphthene		43.6	0.38	1.0	ug/l	50.0		87	47-145	15	30	
Acenaphthylene		46.6	0.40	1.0	ug/l	50.0		93	33-145	13	30	
Anthracene		42.8	0.34	1.0	ug/l	50.0		86	27-133	4	30	
Benzo (a) anthracene		51.3	0.19	1.0	ug/l	50.0		103	33-143	2	30	
Benzo (a) pyrene		43.6	0.13	1.0	ug/l	50.0		87	17-163	5	30	
Benzo (b) fluoranthene		48.8	0.14	1.0	ug/l	50.0		98	24-159	6	30	
Benzo (g,h,i) perylene		23.1	0.10	2.0	ug/l	50.0		46 ⁵	0.1-219	8	30	
Benzo (k) fluoranthene	3.80	49.1	0.22	1.0	ug/l	50.0		98 :	11-162	10	30	
Benzyl butyl phthalate		48.0	0.18	1.0	ug/i	50.0		96	0.1-152	10	==	
Bis(2-chloroethoxy)methane	0	39.6	0.25	1.0	ug/l	50.0	£1	79	33-184	13	30	
Bis(2-chloroethyl)ether		34.7	0.27	1.0	∵ug/i	50.0		69	12-158	18	30 30	•
Bis(2-chlorolsopropyl)ether		32.1	0.38	1.0	ug/i	50.0		64	36-166	18		
Bis(2-ethylhexyl)phthalate		53.2	2.3	5.0	ug/i	50.0		106	8-158	2	30	
Butyl benzyl phthalate	- 20	48.0	0.18	1.0	ug/l	50.0		96	0.1-152	1	30	
Chrysene		44.8	0.19	1.0	ug/l	50.0		80	17-168	6	30	
Dibenzo (a,h) anthracene	0.	26.3	0.080	2.0	ug/l	50.0		53	0.1-227	2	30	
Diethyl phthalate		(5)	0.15	1.0	ug/l	50.0		92	0.1-22/	2	30	
Dimethyl phthalate			0.18	1.0	ug/i	50.0		105	(%)		30	
Di-n-butyl phthalate			0.24	1.0	ug/l	50.0		91	0.1-112 1-118	.4 2	30	
Di-n-octyl phthalate			0.19	1.0	ug/l	50.0	-	91 79	1-316 4-146		30	
Fluoranthene			0.22	1.0	ug/i	50.0		100	4-140 26-137	5	30	
Fluorene			0.35	1.0	ug/i	50.0		90		0.3	30	
				110	-rithit	UU.U		SU.	59-121	8	30	

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Capco Analytical Services 1536 Eastman Avenue Ventura CA, 93003 Analytical Laboratory Service - Since 1964

Date Received: Date Reported:

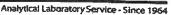
05/14/14 08:30 05/21/14 12:11

Acid and Base/Neutral Extractables by EPA Method 625 - Quality Control

Batch W4E0877 - EPA 625

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS Dup (W4E0877-BSD1)				A	vnalyzed: () 5/19/14 2	20:40				
Hexachlorobenzene	46.2	0.49	1.0	ug/l	50.0		92	0.1-152	0.4	30	
Hexachlorobutadiene	41.8	0.47	1.0	ug/l	50.0		84	24-116	36	30	Q-12
Hexachlorocyclopentadiene	24.6	1.5	5.0	ug/l	50.0		49	0.1-81	34	30	
Hexachloroethane	37.6	0.52	1.0	ug/i	50.0		75	40-113	33	30	Q-12
Indeno (1,2,3-cd) pyrene	23.2	0.12	2.0	ug/i	50.0		46	0.1-171	3:	30	Q-12
Isophorone	39.8	0.21	1.0	ug/l	50.0		80	21-196	12	30	
Naphthalene	38.6	0.49	1.0	ug/i	50.0		77	21-133	20		
Nitrobenzene	42.4	0.36	1.0	ug/l	50.0		85	35-180		30	
N-Nitrosodimethylamine	21.8	0.14	1.0	ug/l	50.0		44	15-59	26	30	
N-Nitrosodi-n-propylamine	41.4	0.26	1.0	ug/l	50.0				13	30	
N-Nitrosodiphenylamine	35.6	0.19	1.0	-	50.0		83	0.1-230	20	30	
Pentachioropheno!	36.8	0.19	1.0	ug/l			71	42-90	0.5	30	
Phenanthrene	43.4	0.32	1.0	ug/l	50.0		74	14-176	24	30	13
Phenoi	12,7	0.16	1.0	ug/l	50.0		87	54-120	1	30	
Pyrene	48.8	0.16		ug/l	50.0		25	5-112	14	30	
Surr: 2,4,6-Tribromophenol		V.25	1.0	ug/l	50.0		98	52-115	2	30	
Sur: 2-Fluorobiphenyl	84.0 42.8			ug/l	100		84	25-102			
Surr: 2-Fluorophenol	42.0 45.5			ug/i	50.0	¥1	86	22-107			
Surr: Nitrobenzene-d5	37.8			ug/l	100 50.0		45	3-74			
Surr: Phenol-d5	27.4			ug/l ug/l	50.0 100		76 27	27-111			
Surr: Terphenyl-d14	48.4			ug/i	50.0		27 97	0.1-53 28-113			





Capco Analytical Services 1536 Eastman Avenue Ventura CA, 93003

Date Received:

05/14/14 08:30

Date Reported:

05/21/14 12:11

Notes and Definitions

Q-12 The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on the percent recoveries and/or other acceptable QC data.

M-04 Due to the nature of matrix interferences, sample extract was diluted prior to analysis. The MDL and MRL were raised due to the dilution.

NOT DETECTED at or above the Reporting Limit. If J-value reported, then NOT DETECTED at or above the Method Detection Limit (MDL)

NR Not Reportable

Dil Dilution

MRL

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

% Rec Percent Recovery

Sub Subcontracted analysis, original report available upon request

MDL Method Detection Limit

MDA Minimum Detectable Activity

Method Reporting Limit

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California Department of Health Services.

The Reporting Limit (RL) is referenced as the Laboratory's Practical Quantitation Limit (PQL) or the Detection Limit for Reporting Purposes (DLR).

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MISO02.

704 A Vei	Environmental, Inc. Adirondack Avenue Intura, CA 93003 805-644-4560	Rep	c/o	Freeport McMoRan LTS, 704 Adirondac Ventura, CA 93003	k Ave	Bill to:	Freeport McMoRan O&G 700 Milam, Ste. 3100 Houston, Tx 77002	
FACILITY: COLLECTOI PROJECT/C RESULTS R RESULTS B	Platform I R: LTS / CHARGE # Annual NI EQUIRED: normal		uced Water	Monitoring		SUBMITTED REPORT TO COPIES TO:	S.G. Lawry @ LTS	PHONE: 644-4560
SAMPLE NO.	SAMPLE ID	GRAB/ COMP.	VOLUME	DATE/TIME COLLECTED	PRESERV.		ANALYSES REQUESTED (N	5/2(5/2) METHOD)
2	NPDES Prod.Water	grab	1 L plastic	5-12-14	HNO ₃	Metals:	Copper	MDL: 10 ug/L
3	NPDES Prod.Water	grab	2 40 mL VOA	1400	* ice	EPA 602:	Benzene	MDL: 3 ug/L
	NPDES Prod.Water	grab	1L Amber	1 You		EPA 625:	Benzo(a)anthracene Benzo(a)pyrene Chrysene Benzo(b)fluoranthene Benzo(k)fluoranthene Dibenzo(a,h)anthracene	MDL: 2 ug/L MDL: 2 ug/L MDL: 2 ug/L MDL: 2 ug/L MDL: 2 ug/L MDL: 2 ug/L
Comments:	* Analysis EDA					140		
Capco: F	* Analyse EPA 602 in 7 Please report MDL	s and PC	Preservtive (Ls on lab	HCI) added due to hig Preport	ih bicarb.leve	els.		
Relinquished b Received by:		Z's		1550	Relinquished be Received by:	y:		Date:
Relinquished by Received by:	у.		Date: Time:		Relinquished be Received by:	у:		Date:



Environmental and Analytical Services-Since 1994
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

Prepared for: Freeport McMoRan O&G

C/O: LTS Environmental, Inc.

704 Adirondack Avenue Ventura, CA 93003 Attn: Steve Lawry

Report Date: May 13, 2014 Laboratory Number: 141213

Project Name: PF Hermosa Monthly NPDES Produced Water Monitoring

On May 8, 2014, Capco Analytical Services, Inc.(CAS), received one(1) sample to be analyzed. The sample was identified and assigned the laboratory ID number listed below:

SAMPLE DESCRIPTION

CAS LAB NUMBER ID

NPDES PROD. WATER

141213-01

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D.

Director - Analytical Operations

cc: PF Hermosa Supervisor @-Orcutt

Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

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CERTIFICATE OF ANALYSIS

Client: Freeport McMoRan (PF Hermosa)

CAS LAB NO: 141213 Analyzed By: AN

Date Sampled: 05/06/14

Date Received: 05/08/14 Date Analyzed: 05/13/14

Sample Matrix: Water

DISSOLVED SULFIDE EPA METHOD 45005-2F

CAS LAB #	Sample ID	RESULTS (mg/L)	DF 	MDL (mg/L)	PQL (mg/L)	_
141213-01	NPDES Prod. Water	138	1	0.04	0.2	***

QUALITY CONTROL DATA

141213-MB Method Blank

ND 1 0.04

0.2

mg/L: Milligrams/Liter(ppm)

DF: Dilution Factor

L LIS	Environmental, Inc.	Rep	ort to:	Freeport McMoRan	OSC	Dill to Francisco Control
704	Adirondack Avenue		c/o	I TO 704 Adimende	UokG	Bill to: Freeport McMoRan O&G
Ve	entura, CA 93003		GO	LTS, 704 Adirondad		700 Milam, Ste. 3100 5/15 5/16 Houston, Tx 77002
1	805-644-4560			Ventura, CA 93003		Houston, Tx 77002
FACILITY: COLLECTO PROJECT/O RESULTS F	Platform H DR: LTS / CHARGE # Monthly N		uced Water	Monitoring	®	SUBMITTED TO: Capco Analytical Services REPORT TO: S.G. Lawry @ LTS PHONE: 644-4560 COPIES TO: Platform Supervisor (201 S Broadway, Orcutt)
	BY: PHONE:					Ruth Juris (email) PHONE:
VESOF19	BT; PHONE;	FAX:		•		
SAMPLE	DARRIAM AND					
NO.	SAMPLE ID	GRAB/ COMP.	VOLUME	DATE/TIME COLLECTED	PRESERV.	ANALYSES REQUESTED (METHOD)
1	NPDES Prod.Water	grab	500 mL plastic	5/6/2014 1905	NaOH-Zn AIC3	Dissolved Sulfides (Method SM4500S-2F) MDL: 20 ug/L (Dissolved sulfides were preserved & filtered in the field prior to submittal) Hold: Conductivity TBD. See chain
						Field Test Results: 140 ppm.
Capco:	Please report MDL	s and PQ	Ls on lab	report		
Relinquished t	by: (/1.)	X	D-4	200		
Received by:				78.14	Relinquished b	y: Date:
	- 5		Time:	1205	Received by:	Time:
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eceived by:	- J -		Date:		Relinquished by): Date:
-			Time:		Received by:	Time:



Environmental and Analytical Services-Since 1994
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

Prepared for: Freeport McMoRan O&G

C/O: LTS Environmental, Inc.

704 Adirondack Avenue Ventura, CA 93003 Attn: Steve Lawry

Report Date: May 15, 2014 Laboratory Number: 141262

Project Name: PF Hermosa Monthly NPDES Produced Water Monitoring

On May 13, 2014, Capco Analytical Services, Inc.(CAS), received one(1) sample to be analyzed. The sample was identified and assigned the laboratory ID number listed below:

SAMPLE DESCRIPTION

CAS LAB NUMBER ID

OCEAN WATER @-FIRE WATER PUMPS

141262-01

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D.

Director - Analytical Operations

cc: PF Hermosa Supervisor @-Orcutt
Ruth Juris @-EDT

*

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CERTIFICATE OF ANALYSIS

Client: Freeport McMoRan (PF Hermosa) CAS LAB NO: 141262 Analyst: GP	Date Re Date An	ceived:	05/13/14 05/13/14 05/13/14 Water
SPECIFIC CONDUCTIVE EPA Method 120.	7ITY 1		
CAS LAB # Sample ID	RESULTS (µS/cm)	DF	PQL (µS/cm)
141262-01 Ocean Water @-Fire Water Pumps	51200	 1	4

704 A	:nvironmei dirondack ntura, CA (805-644-45	Avenue 93003	Rep	ort to: c/o	Freeport McMoRan LTS, 704 Adirondaci Ventura, CA 93003	O&G K Ave	700	eport McMoRan O&G Milam, Ste. 3100 ston, Tx 77002	
FACILITY: COLLECTOF PROJECT/C RESULTS RI RESULTS B	HARGE # EQUIRED:	Platform H LTS / Monthly N normal		uced Water	Monitoring	180 2 36	SUBMITTED TO: REPORT TO: S.G. COPIES TO: Platt	orm Supervisor (201 S Broa	IONE: 644-4560
SAMPLE NO.		PLE ID	GRAB/ COMP.	VOLUME	DATE/TIME COLLECTED	PRESERV.	A	NALYSES REQUESTED (METHO)	
1	Ocean Wa Fire Water	iter @ pumps	grab	/	5.13.14 500	Ke	Conductivity	2.52	101 5/22
						2	E\$		
Comments: A	Dissolved S	Sulfides colle	ected the pr	evious wee	k				
		port MDL	s and PC	Ls on la	report				
Relinquished b Received by:	у. ((legh	100	Date: . Time:	5.13.14 1550	Relinquished b	у:		Date:
Relinquished by	y:			Date:		Relinquished b		Ti	lme:
Received by:				Time:		Received by:	y.		ete:

Environmental and Analytical Services-Since 1994
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

Prepared for: Freeport McMoRan O&G

C/O: LTS environmental, Inc.

704 Adirondack Avenue Ventura, CA 93003 Attn: Steve Lawry

Report Date: June 16, 2014
Laboratory Number: 141507

Project Name: PF Hermosa NPDES Produced Water Weekly

Sampled by: Client

On June 9, 2014, Capco Analytical Services, Inc.(CAS), received four(4) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

CAS LAB NUMBER ID
OF
141507-01
141507-02*
141507-03*
141507-04*

*HOLD PER CUSTOMER'S REQUEST

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D. Director - Analytical Operations

cc: PF Hermosa @-Orcutt Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

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CERTIFICATE OF ANALYSIS

Client: Freeport McMoRan O&G (PF Hermosa)

CAS LAB NO: 141507

Analyst: GM

Date Sampled: 06/06/14

Date Received: 06/09/14

Date Analyzed: 06/11/14

Sample Matrix: Water

OIL & GREASE ANALYSIS EPA METHOD 1664

CAS LAB #	Sample ID	RESULTS (mg/L)		MDL (mg/L)	
141507-01	Produced Water	6.9	1	1	5

QUALITY CONTROL DATA

141507-MB Method Blank ND 1 1 5

I TO EN	VIDONIMENTAL INC	Depart	FN4 OOA		N		Bill to:	74	77.00		
	VIRONMENTAL, INC.	Report to: FM O&G c/o Steve Lawry						FM O&G			
	dirondack Avenue							Accounts Payable		1.1	
	ntura, CA 93003							700 Milam		6/16	, [
Charles and the same of the sa	805-644-4560						'	Houston, T		•	6/1/
FACILITY:	PI. H	Ermosu				SUBMITTED	TO:	Capco Analytical PHONE:			
COLLECTOR	R: LTS / C. C	MULTINE				REPORT TO:	****				
PROJECT/CI	HARGE# NPDES Pro	duced Water	Weeklu			•			FAX:		
RESULTS RE						COPIES TO:	Platform	Supervisor	PHONE:	644-	4560
RESULTS B	Y: PHONE:	FAX:				•		Broadway	PHONE:		7000
	7/11-b					•	Orcutt, CA			cc: Ruth Jui	ris
SAMPLE	SAMPLE ID/LOCATION	GRAB/	VOLUME	DATE/TIME	PRE-		-	ALYSES REQU			10
NO.		COMP.		COLLECTED	SERV.					100)	
	Produced water			00106/84		HEC		***			
1		Grab	1	1245	Het	O&G (EPA	1664)				
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2				1315							
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3				1345							
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Prepared for: Freeport McMoRan O&G

C/O: LTS environmental, Inc.

704 Adirondack Avenue Ventura, CA 93003 Attn: Steve Lawry

Report Date: June 19, 2014
Laboratory Number: 141564

Analytical Services, Inc.

Project Name: PF Hermosa wk(2) weekly NPDES

Sampled by: Client

On June 13, 2014, Capco Analytical Services, Inc.(CAS), received four(4) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

SAMPLE DESCRIPTION	CAS LAB NUMBER ID
UNICEL OUT	141564-01
UNICEL OUT	141564-02*
UNICEL OUT	141564-03*
UNICEL OUT	141564-04*

*HOLD PER CUSTOMER'S REQUEST

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D.

Director - Analytical Operations

cc: PF Hermosa @-Orcutt
Ruth Juris @-EDT

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CERTIFICATE OF ANALYSIS

Client: Freeport McMoRan O&G (PF Hermosa)

Date Sampled: 06/11/14

CAS LAB NO: 141564

Date Received: 06/13/14

Analyst: GM

Date Analyzed: 06/18/14

Sample Matrix: Water

OIL & GREASE ANALYSIS EPA METHOD 1664

CAS LAB #	•	RESULTS (mg/L)		
141564-01			1.	5

QUALITY CONTROL DATA

141564-MB Method Blank ND

1

1

Chain of Custody

LTS Environmental, Inc. 704 Adirondack Avenue Ventura, CA 93003 805-644-4560			Report to FM O&G c/o Steve Lawry					Bill to: Accounts Payable 700 Milam Ste 3100 Houston, TX, 77002	6/20
FACILITY: Hermosa COLLECTOR: LTS PROJECT/CHARGE # RESULTS REQUIRED: Normal RESULTS BY: PHONE:						SUBMITTED TO REPORT TO: COPIES TO:	PHONE: PHONE: 644-456 Platform Supervisor PHONE: 644-456 201 S. Broadway, PHONE: PHO		
SAMPLE NO.	SAMPLE	ID/LOCATION	GRAB/	VOLUME	DATE/TIME	Pre-		ANALYSES REQUESTED (METHOD)	
1	Unicel	out	grab	1	COLLECTED Date: 6 · / / · / 4 Time: /830	HCI	EPA 1664	AB5 (9) IR(10)	
2		/	grab	1	1845	ļ.,			
3			grab	1	1900	11			\neg
4	1		grab	1	1915	1			
						·			
	D #4 11								
Comments:	Run #1. Ho	old rest.	W-Sall File File		9				
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Received by:	oy:			Date:		Relinquis	*******	Date:	\dashv
· ·				Time:		Received	by:	Time:	

Environmental and Analytical Services-Since 1994 California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

Prepared for: Freeport McMoRan O&G

C/O: LTS environmental, Inc.

704 Adirondack Avenue Ventura, CA 93003 Attn: Steve Lawry

Report Date:

June 24, 2014

Laboratory Number: 141598

Project Name: PF Hermosa wk(3) weekly NPDES

Sampled by: Client

On June 18, 2014, Capco Analytical Services, Inc.(CAS), received four(4) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

SAMPLE DESCRIPTION	CAS LAB NUMBER ID
UNICEL OUT	141598-01
UNICEL OUT	141598-02*
UNICEL OUT	141598-03*
UNICEL OUT	141598-04*

*HOLD PER CUSTOMER'S REQUEST

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D.

Director - Analytical Operations

cc: PF Hermosa @-Orcutt
Ruth Juris @-EDT

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CERTIFICATE OF ANALYSIS

Client: Freeport McMoRan O&G (PF Hermosa) CAS LAB NO: 141598

Analyst: GM

Date Sampled: 06/17/14

Date Received: 06/18/14 Date Analyzed: 06/23/14

Sample Matrix: Water

OIL & GREASE ANALYSIS EPA METHOD 1664

CAS LAB #	sample	ID	RESULTS (mg/L)	DF	MDL (mg/L)	PQL (mg/L)
141598-01	Unicel	Out	3.9	1	1	5

QUALITY CONTROL DATA

141598-MB Method Blank

ND 1 1 5

Chain of Custody

	Environmental, inc.	Report trFM O&G c/o S. Lawry					Bill to: Accounts Payable			
	Adirondack Avenue Intura, CA 93003		.,,			700 Milam Ste 3100 6 25 Houston, TX, 77002				
FACILITY:	805-644-4560 Hermosa wi		(3)				o: Capco Ana	lytical Services 6/24		
COLLECTOR: 4 PROJECT/CHARGE # Weekly NPDE RESULTS REQUIRED: Normal			ES .			REPORT TO: COPIES TO:	Platform Supervisor 201 S. Broadway,	PHONE: 644-4560 PHONE:		
RESULTS BY: PHONE:		FAX:	FAX:				Orcutt, CA 93455	FI IQING		
SAMPLE NO.	SAMPLE ID/LOCATION	GRAB/ COMP.	VOLUME	DATE/TIME COLLECTED	Pre- serv		ANALYSES REQUESTED	(METHOD)		
1	Unicelout	grab	1	Date: 6 . 17 . 14 Time: 800	Hel	EPA 1664	Abs (7)	IR(9)		
2		grab	1	830						
3		grab	1	900						
4	*	grab	1	930	+		***************************************			
	·									
		·								
		,								
Comments:	Run #1. Hold rest				<u>ij</u>					
Relinquished t	by: ('(h))	V	Date	2.22/1	D. H.					
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Relinquished t	ру:		Date:		Relinquis	hed by:		Date:		
Received by:			Time:		Received	l by:	182	Time:		



Prepared for: Freeport-McMoRan Oil & Gas

C/O: LTS environmental, Inc.

704 Adirondack Avenue Ventura, CA 93003 Attn: Steve Lawry

Report Date: July 1, 2014

Laboratory Number: 141662

Project Name: PF Hermosa wk(4) Weekly NPDES

Sampled by: Client

On June 26, 2014, Capco Analytical Services, Inc.(CAS), received four(4) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

SAMPLE DESCRIPTION	CAS LAB NUMBER ID
UNICEL OUT UNICEL OUT UNICEL OUT UNICEL OUT	141662-01 141662-02* 141662-03* 141662-04*

*HOLD PER CUSTOMER'S REQUEST

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D.

Director - Analytical Operations

cc: PF Hermosa @-Orcutt Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.



Client: Freeport-McMoRan Oil & Gas (PF Hermosa) Date

CAS LAB NO: 141662

troluct. CV

Analyst: GM

Date Sampled: 06/24/14 Date Received: 06/26/14

Date Analyzed: 06/30/14 Sample Matrix: Water

OIL & GREASE ANALYSIS EPA METHOD 1664

CAS LAB # Sample ID RESULTS MDL PQL (mg/L) DF (mg/L) (mg/L)

141662-01 Unicel Out 4.3 1 1 5

QUALITY CONTROL DATA

141662-MB Method Blank

ND 1 1 5

Chain of Custody

LTS E	Environmental, Inc.	Report t	FM O&C	s c/o S. Lawry		·	Bill to: Accounts	Payable
704 A	Adirondack Avenue			•	2		700 Milam	•
	ntura, CA 93003			*			Houston, TX	
	805-644-4560		4			***	110000011 11	
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COLLECTOR	: <i></i>	3				REPORT TO:		PHONE:
PROJECT/CH		ES				COPIES TO:	Platform Supervisor	PHONE: 644-4560
RESULTS RE							201 S. Broadway,	PHONE:
RESULTS B	Y: PHONE:	_ FAX:	134	_		**	Orcutt, CA 93455 Ruth Juris	4
SAMPLE	SAMPLE ID/LOCATION	GRAB/	VOLUME	DATE/TIME	Pre-		ANALYSES REQUESTED	(METHOD)
NO.		COMP.		COLLECTED	serv		(4)	10 20 20
1	Unicel out	grab	1	Date: 624.14 Time: 2000	1121	EPA 1664	Abs (8)	P ('4)
2		grab	1	V-77-05-00-00-00-00-00-00-00-00-00-00-00-00-				
			,	2030	1 1	1		
3		grab	1	2100		77		
4	~	grab	1	2130	+			
				·			Field notes	3/10
Comments:	Run #1. Hold rest.		-	L ;"-			The second secon	
Relinquished t	by:	2	Date:	6.26.14	Relinquis	shed by:		Date:
Received by:	Teg	loub	Time:	1100	Received			Time:
Relinquished b	py:	0	Date:		Relinquis	shed by:		Date:
Received by:			Time:		mindale	wingi	a. 777	Date



Prepared for: Freeport McMoRan O&G

C/O: LTS environmental, Inc.

704 Adirondack Avenue Ventura, CA 93003 Attn: Steve Lawry

Report Date: June 17, 2014 Laboratory Number: 141565

Project Name: PF Hermosa Monthly NPDES Produced Water Monitoring

Sampled by: Client

On June 13, 2014, Capco Analytical Services, Inc. (CAS), received one(1) sample to be analyzed. The sample was identified and assigned the laboratory ID number listed below:

SAMPLE DESCRIPTION

CAS LAB NUMBER ID

OCEAN WATER @FIRE WATER PUMPS

141565-01

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Yuah Chang, Ph.D.

Director - Analytical Operations

cc: PF Hermosa @-Orcutt Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

Sample Matrix: Water



CERTIFICATE OF ANALYSIS

Client:	Freeport McMoRan	(PF Hermosa)	Date Sampled:	06/12/14
	NO: 141565		Date Received:	
Analyst:	GP		Date Analyzed:	

SPECIFIC CONDUCTIVITY EPA Method 120.1

	RESULTS		PQL
CAS LAB # Sample ID	(µS/cm)	DF	(µS/cm)

141565-01 Ocean Water @-Fire Water Pumps	51400	1	1

LTS Environmental, Inc. 704 Adirondack Avenue Ventura, CA 93003 805-644-4560 FACILITY: Platform H COLLECTOR: LTS / PROJECT/CHARGE # Monthly NI RESULTS REQUIRED: normal RESULTS BY: PHONE:		ermosa	ort to: c/o uced Water	Freeport McMoRan C LTS, 704 Adirondack Ventura, CA 93003 Monitoring		SUBMITTED TO: Capco Analytical Sen REPORT TO: S.G. Lawry @ LTS PH COPIES TO: Platform Supervisor (201 S Broa	HONE: 644-4560
SAMPLE NO.	SAMPLE ID	GRAB/ COMP.	VOLUME	DATE/TIME COLLECTED	PRESERV.	ANALYSES REQUESTED (METHO	D)
1	Ocean Water @ Fire Water pumps	grab	/	6.12.14 700	Ice	Conductivity P58 d	rese/
						make up sample.	
Comments:							
	Please report MDL	s and PC	Ls on la	report			
Relinquished b Received by:	y: Circle	D		1220	Relinquished t Received by:		Date:
Relinquished b Received by:	у:		Date: Time:		Relinquished by:		Date:



Prepared for: Freeport McMoRan O&G

C/O: LTS Environmental, Inc.

704 Adirondack Avenue Ventura, CA 93003 Attn: Steve Lawry

Report Date: June 17, 2014 Laboratory Number: 141506

Project Name: PF Hermosa Monthly Sulfides

On June 9, 2014, Capco Analytical Services, Inc.(CAS), received one(1) sample to be analyzed. The sample was identified and assigned the laboratory ID number listed below:

SAMPLE DESCRIPTION

CAS LAB NUMBER ID

PRODUCED WATER DIFFUSER

141506-01

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D.
Director - Analytical Operations

cc: PF Hermosa Supervisor @-Orcutt
Ruth Juris-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

CERTIFICATE OF ANALYSIS

Client: Freeport McMoRan (PF Hermosa)

CAS LAB NO: 141506

Analyzed By: AN

Date Sampled: 06/06/14 Date Received: 06/09/14

Date Analyzed: 06/16/14

Sample Matrix: Water

DISSOLVED SULFIDE EPA METHOD 4500S-2F

CAS LAB #	Sample ID	RESULTS (mg/L)	DF	MDL (mg/L)	PQL (mg/L)	
141506-01	Produced Water Diffuser	90	1	0.04	n.2	-

QUALITY CONTROL DATA

141506-MB Method Blank 1 ND 0.04 0.2

mg/L: Milligrams/Liter(ppm)

DF: Dilution Factor

141506

1.70.20		1=						
	VIRONMENTAL, INC.	Report to	:FM O&C	G c/o Steve L	.awry	Bill to: FM	O&G	1
	dirondack Avenue					Acc	ounts Payable	6/16
	ntura, CA 93003	1					Milam Ste 3100	1
The second second	805-644-4560						ston, TX, 77002	6/17
FACILITY:	P1, 48,	mo sa	201111	-		Water and the second se	co Analytical	
COLLECTOR	R: LTS - NY	one s		n		REPORT TO:	PHONE:	~w
PROJECT/C		lfides					FAX:	
RESULTS R						COPIES TO: Platform Super		644-4560
RESULTS B	Y: PHONE:	FAX:				201 S. Broad		011-1000
						Orcutt, CA 9345		Ruth Juris
SAMPLE	SAMPLE ID/LOCATION	GRAB/	VOLUME	DATE/TIME	PRE-	The state of the s	S REQUESTED (METHO	
NO.		COMP.		COLLECTED	SERV.		(METHO	,
	Produced water			06/00/14	Zní Ac			
1	Diff Finser	Grab	1	14150	+481+	Dissolved Sulfides		
			1 1	,				**************************************
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Comments:	Full tocts to	201						
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eceived by:			Date:		Relinquished		Date:	
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Prepared for: Freeport-McMoRan Oil & Gas

C/O: LTS environmental, Inc.

704 Adirondack Avenue Ventura, CA 93003 Attn: Steve Lawry

Report Date: July 15, 2014

Laboratory Number: 141799

Project Name: PF Hermosa wk(2) weekly NPDES

Sampled by: Client

On July 9, 2014, Capco Analytical Services, Inc. (CAS), received four (4) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

CAS LAB NUMBER ID
141799-01
141799-02*
141799-03*
141799-04*

*HOLD PER CUSTOMER'S REQUEST

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D.

Director - Analytical Operations

cc: PF Hermosa @-Orcutt Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.



Client: Freeport-McMoRan Oil & Gas (PF Hermosa)

Date Sampled: 07/08/14 Date Received: 07/09/14

CAS LAB NO: 141799

Analyst: GM

Date Analyzed: 07/14/14 Sample Matrix: Water

OIL & GREASE ANALYSIS EPA METHOD 1664

CAS LAB #	Sample ID			MDL (mg/L)	
141799-01	Unicel Out	8.1	1	1	5

QUALITY CONTROL DATA

Method Blank 141799-MB

ND 1 1 5

Chain of Custody

LTS Environmental, Inc. 704 Adirondack Avenue Ventura, CA 93003 805-844-4560 FACILITY: COLLECTOR: PROJECT/CHARGE # RESULTS REQUIRED: RESULTS BY: PHONE:		Report	FM O&G	S s c/o S. Lawry			Bill to: Accounts Payable 700 Milam Ste 3100 Houston, TX, 77002			
		rmosa. ∠75 ES FAX:	wk(a)	VPDES	540	SUBMITTED TREPORT TO:	Platform Supervisor 201 S. Broadway, Orcutt, CA 93455 Ruth Juris			
SAMPLE NO.	SAMPLE	ID/LOCATION	GRAB/ COMP.	VOLUME	DATE/TIME COLLECTED	Pre-		ANALYSES REQUEST	ED (METHOD)	
1	Unicer	Part	grab	1 .	Date: 7-8-14 Time: 2000	serv HC/	EPA 1664	Abs (9) 11	(01)	
2		/	grab ,	1	80 15	1				7-
3			grab	1	2030					r.
4			grab	1	2045	+				
					Alle			Field notes		***************************************
		-			12		120 pp 1	· (Sulfides)	19.5K	HRS

	••			<u>.</u> .					*	
Comments: Relinquished becoived by:	Run #1. Ho	ld rest.		Date:	7-9-14 1310	Relinquis			Date:	
Relinquished b	oy:	v	- 2	Date:			9.		Time:	
Received by:				Time:		Relinquis Received			Date: Time:	



Prepared for: Freeport-McMoRan Oil & Gas

C/O: LTS environmental, Inc.

704 Adirondack Avenue Ventura, CA 93003 Attn: Steve Lawry

Report Date: July 24, 2014
Laboratory Number: 141876

Project Name: PF Hermosa Produced Water NPDES Weekly

Sampled by: Client

On July 18, 2014, Capco Analytical Services, Inc.(CAS), received four(4) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

SAMPLE DESCRIPTION	CAS LAB NUMBER ID
PRODUCED WATER PRODUCED WATER PRODUCED WATER PRODUCED WATER	141876-01 141876-02* 141876-03* 141876-04*

*HOLD PER CUSTOMER'S REQUEST

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D.

Director - Analytical Operations

cc: PF Hermosa @-Orcutt Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

CERTIFICATE OF ANALYSIS

Client: Freeport-McMoRan Oil & Gas (PF Hermosa)

Date Sampled: 07/16/14

CAS LAB NO: 141876

Date Received: 07/18/14 Date Analyzed: 07/21/14

Analyst: GM

Sample Matrix: Water

OIL & GREASE ANALYSIS EPA METHOD 1664

CAS LAB #	Sample ID	RESULTS (mg/L)	DF	MDL (mg/L)	PQL (mg/L)
141876-01	Produced Water	7.8	1	1	5

QUALITY CONTROL DATA

141876-MB Method Blank

ND 1 1 5

LTS EN	IVIRONMENTAL, INC.	Report to	· FM Ogo	G c/o Steve L		
	dirondack Avenue	opoit a	ZET IVI COXC	a wo steve t	_awry	Bill to: FM O&G
Ventura, CA 93003		1				Accounts Payable 7/23
	805-644-4560					Accounts Payable 700 Milam Ste 3100 Houston, TX, 77002 7/28
FACILITY:	The second secon	Hop magu			- Parket Land	Houston, TX, 77002 7/38
COLLECTOR		Jonah.				SUBMITTED TO: Capco Analytical
PROJECT/C	HARGE# NPDES Pro	duced Wate	r Weeklu			REPORT TO: PHONE:
RESULTS RI	EQUIRED: Standard		*4.			FAX:
RESULTS B	Y: PHONE:	FAX:	14	93		COPIES TO: Platform Supervisor PHONE: 644-4560
				1. t		Orcutt, CA 93455 CC: Ruth Juris
SAMPLE NO.	SAMPLE ID/LOCATION	GRAB/	VOLUME	DATE/TIME	PRE-	Orcutt, CA 93455 cc: Ruth Juris ANALYSES REQUESTED (METHOD)
NO.	Deschool	COMP.		COLLECTED	SERV.	MARE ISES REGUESTED (METAOD)
1	Produced water	0.1		07/16/14		
<u> </u>		Grab	1	0545	HCI	O&G (EPA 1664)
2		{		0 0 days	1	
			 	0600		
3		1	i l	ONE		
		1/		7-04-0		
4		V /		0645		
				OF 10	- -	
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mments: F	Run #1; Hold 2-4					
milents. F	Nun #1; Hold 2-4			A 60 = C	7	(412044)
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			Time: 4		eceived by	
nquished by	,					ı me;
eived by:			Date:	R	elinquished	d by:
			Time:		eceived by	, Cate.
		5				Time:

Prepared for: Freeport-McMoRan Oil & Gas

C/O: LTS environmental, Inc.

704 Adirondack Avenue Ventura, CA 93003 Attn: Steve Lawry

Report Date: July 31, 2014 Laboratory Number: 141913

Analytical Services, Inc.

Project Name: PF Hermosa Weekly NPDES

Sampled by: Client

On July 24, 2014, Capco Analytical Services, Inc.(CAS), received four(4) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

SAMPLE DESCRIPTION	CAS LAB NUMBER ID
UNICEL OUT UNICEL OUT UNICEL OUT UNICEL OUT	141913-01 141913-02* 141913-03* 141913-04*

*HOLD PER CUSTOMER'S REQUEST

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D.

Director - Analytical Operations

cc: PF Hermosa @-Orcutt
Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.



Client: Freeport-McMoRan Oil & Gas (PF Hermosa)

CAS LAB NO: 141913

Date Sampled: 07/23/14 Date Received: 07/24/14

Analyst: GM Date Analyzed: 07/30/14

Sample Matrix: Water

OIL & GREASE ANALYSIS EPA METHOD 1664

CAS LAB #	Sample	ID	RESULTS (mg/L)	DF	MDL (mg/L)	PQL (mg/L)
141913-01	Unicel	Out	7.2	1.	1	5

QUALITY CONTROL DATA

141913-MB Method Blank

ND 1 1 5

Chain of Custody

LTS Environmental, Inc. 704 Adirondack Avenue Ventura, CA 93003 805-644-4560 FACILITY: COLLECTOR: PROJECT/CHARGE # RESULTS REQUIRED: RESULTS BY: PHONE:		Report	FM O&C	S s c/o S. Lawry			Bill to: Accounts Pay 700 Milam Ste 3 Houston, TX, 77	100 7/31
		Hermosa_ LTS DES			ē.	SUBMITTED TREPORT TO:	Platform Supervisor Programme Progra	HONE: 644-4560
SAMPLE NO.	SAMPLE ID/LOCATION	GRAB/ COMP.	VOLUME	DATE/TIME COLLECTED	Pre-		Ruth Juris ANALYSES REQUESTED (MET	HOD)
1	Unicelout	grab	1	Date: 7-23-14 Time: 1000	Hei	EPA 1664	Abs (9) IR(10)	
2	1	grab	1	1015			moch Ixcle)	
3		grab	1	1030 KRHKS	1/			
4	×	grab	1	1045	1			
			-	200		188		,
							Field notes	
								-
mments: F	Run #1. Hold rest.							
inquished by		7/						
elved by:	22		Date: _ Time:	724.14	Relinquis			Date:
	- 0	0	11110.	10-0	Received	Dy:		l'ime:
nquished by eived by:	<i>.</i>		Date:		Relinquis	hed by:		Date:
u. by.			Time;		Received	by:		Cate



Prepared for: Freeport-McMoRan Oil & Gas

C/O: LTS Environmental, Inc.

704 Adirondack Avenue Ventura, CA 93003

Attn: Steve Lawry

Report Date: July 11, 2014
Laboratory Number: 141800

Project Name: PF Hermosa, Monthly NPDES Produced Water Monitoring

Sampled By: Client

On July 9, 2014, Capco Analytical Services, Inc.(CAS), received one(1) sample to be analyzed. The sample was identified and assigned the laboratory ID number listed below:

SAMPLE DESCRIPTION

CAS LAB NUMBER ID

OCEAN WATER @FIRE WATER PUMPS

141800-01

By my signature below, I certify that the results contained in this laboratory report, comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D.

Director - Analytical Operations

cc: PF Hermosa Supervisor

Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.



Client: Freeport-McMoRan Oil & Gas (PF Hermosa) Date Sampled: 07/09/14

CAS LAB NO: 141800

Date Received: 07/09/14

Analyst: AN

Date Analyzed: 07/09/14

alyst: AN Date Analyzed: 07/09/14 Sample Matrix: Water

SPECIFIC CONDUCTIVITY EPA Method 120.1

CAS LAB # Sample ID	RESULTS (µS/cm)	DF	PQL (µS/cm)
141800-01 Ocean Water @-Fire Water Pumps	51500	1	· 1

LTS Environmental, Inc. 704 Adirondack Avenue Ventura, CA 93003		Report to:	Freeport McMoRan LTS, 704 Adirondac Ventura, CA 93003		Bill to: Freeport McMoRan O&G 700 Milam, Ste. 3100 Houston, Tx 77002			
FACILITY: COLLECTOR PROJECT/CI RESULTS RE	HARGE # Monthly NF EQUIRED: normal	ermosa PDES Produced W	ater Monitoring	3	SUBMITTED TO: Capco Analytical Services REPORT TO: S.G. Lawry @ LTS PHONE: 644-45 COPIES TO: Platform Supervisor (201 S Broadway, Orcutt) Ruth Juris (email) PHONE: 7/16 7/17			
SAMPLE NO.	SAMPLE ID	GRAB/ VOLU	ME DATE/TIME COLLECTED	PRESERV.	Charles and the control of the contr			
1	Ocean Water @ Fire Water pumps	grab /	7.9.14	Ice	Conductivity			
	3							
			27					
Capco:	Please report MDL Dissolved Sulfides colle	s and PQLs or	lab report					
Relinquished t	by: Control Control		week. Pate: <u>7-9-14</u>	Relinquished	by: Date:			
Received by:			ime: 1310	Received by:	Date.			
Relinquished by:	ру:		eate:	Relinquished Received by:				



Prepared for: Freeport-McMoRan Oil & Gas

C/O: LTS Environmental, Inc.

704 Adirondack Avenue Ventura, CA 93003 Attn: Steve Lawry

Report Date: July 9, 2014 Laboratory Number: 141728

Project Name: PF Hermosa, Monthly NPDES Produced Water Monitoring

Sampled By: Client

On July 3, 2014, Capco Analytical Services, Inc.(CAS), received one(1) sample to be analyzed. The sample was identified and assigned the laboratory ID number listed below:

SAMPLE DESCRIPTION

CAS LAB NUMBER ID

NPDES PROD. WATER

141728-01

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D.

Director - Analytical Operations

cc: PF Hermosa Supervisor

Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.



Client: Freeport-McMoRan Oil & Gas (PF Hermosa)

Date Sampled: 07/02/14

CAS LAB NO: 141728 Analyzed By: AN

Date Received: 07/03/14

Date Analyzed: 07/08/14

Sample Matrix: Water

DISSOLVED SULFIDE EPA METHOD 4500S-2F

CAS LAB #	Sample ID	RESULTS (mg/L)	DF	MDL (mg/L)	PQL (mg/L)	
141728-01	NPDES Produced Water	140	1	0.04	0.2	

QUALITY CONTROL DATA

141728-MB Method Blank

ND

0.04

1

0.2

mg/L: Milligrams/Liter(ppm)

DF: Dilution Factor

COLLECTOR: LTS / REP	MITTED TO: Capco Analytical Services ORT TO: S.G. Lawry @ LTS PHONE: 644-4560 IES TO: Platform Supervisor (201 S Broadway, Orcutt) Ruth Juris (email) PHONE:
ROJECT/CHARGE # Monthly NPDES Produced Water Monitoring normal ESULTS REQUIRED: FAX: FAX:	7.60 BC BC
BAMPLE SAMPLEID GRAB/ VOLUME DATE/TIME PRESERV. NO. COMP. COLLECTED	ANALYSES REQUESTED (METHOD)
NPDES Prod. Water plastic 400 (Dis	solved Sulfides (Method SM4500S-2F) MDL: 20 ug/L solved sulfides were preserved & filtered in the field to submittal)
General Marketon (Santa)	ductivity (25/
ments:	
pco: Please report MDLs and PQLs on lab report	
quished by: Date: 7-3-14 Relinquished by: Received by:	Date: Time:
quished by: Date: Relinquished by: Received by:	Date:

Prepared for: Freeport-McMoRan Oil & Gas

C/O: LTS environmental, Inc.

704 Adirondack Avenue Ventura, CA 93003 Attn: Steve Lawry

Report Date: August 1, 2014
Laboratory Number: 141959

Project Name: PF Hermosa Weekly NPDES

Sampled by: Client

On July 30, 2014, Capco Analytical Services, Inc.(CAS), received four(4) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

SAMPLE DESCRIPTION	CAS LAB NUMBER ID
UNICEL OUT	141959-01
UNICEL OUT	141959-02*
UNICEL OUT	141959-03*
UNICEL OUT	141959-04*

*HOLD PER CUSTOMER'S REQUEST

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D. Director - Analytical Operations

cc: PF Hermosa @-Orcutt
Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

CERTIFICATE OF ANALYSIS

Client: Freeport-McMoRan Oil & Gas (PF Hermosa)

CAS LAB NO: 141959

Analyst: GM

Date Sampled: 07/29/14 Date Received: 07/30/14

Date Analyzed: 07/31/14

Sample Matrix: Water

OIL & GREASE ANALYSIS EPA METHOD 1664

CAS LAB #	•	RESULT (mg/L) DF		PQL (mg/L)
	Unicel Out	8.5	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
111101 01	onfoct off	0.5		1	5

QUALITY CONTROL DATA

141959-MB Method Blank ND 1 5

Chain of Custody

Ven	nvironmental; Inc. dirondack Avenue tura, CA 93003	Report t	FM O&G	s c/o S. Lawry			Bill to:	Bill to: Accounts Payable 700 Milam Ste 3100 Houston, TX, 77002			
ALCOHOL: NAME OF TAXABLE PARTY.	805-644-4560		J			CURATTER 3	ro.	Canao Anal	lytical Services		
FACILITY:	Hermosa		N	".		SUBMITTED 1	10:	Capco Atlai	PHONE:		
COLLECTOR:	LTS					REPORT TO:	Dietform	Supervisor	PHONE: 644-4	1560	
PROJECT/CH/		ES	-			COPIES TO:		Broadway,	PHONE: 1		
RESULTS REC))	42		Orcutt, C.			* 1	
RESULTS BY:	: PHONE:	FAX:		•			Ruth Juris		816	8/:	
SAMPLE NO.	SAMPLE ID/LOCATION	GRAB/ COMP.	VOLUME	DATE/TIME COLLECTED	Pre-		AND DESCRIPTION OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED I	S REQUESTED	(METHOD)		
1	Unicel out	grab	1	Date: 77-29 · 14 Time: 14/5	HCI	EPA 1664	Abs (13)	IR (14)			
2		grab	1	1430			8.00	901			
3		grab	1	1445				-	9		
4	×	grab	1	1500	*						
			:				Field not	les			
						33k H2S.	10.00	* 4			
				*				at 10		32	
Comments: F	Run #1. Hold rest.							-			
		ā!									
Relinquished by Received by:	y. Cliff		Date:			ished by:		N.	Date:		
received by:			Time:	1115	Receive	d by:			Time:		
Relinquished by	V'		Date:		Polingui	ished by:			Date		
Received by:	J.	8	Time:	Allery Control of the	Receive				Date:	_	